# SKEPTICAL INQUIRER

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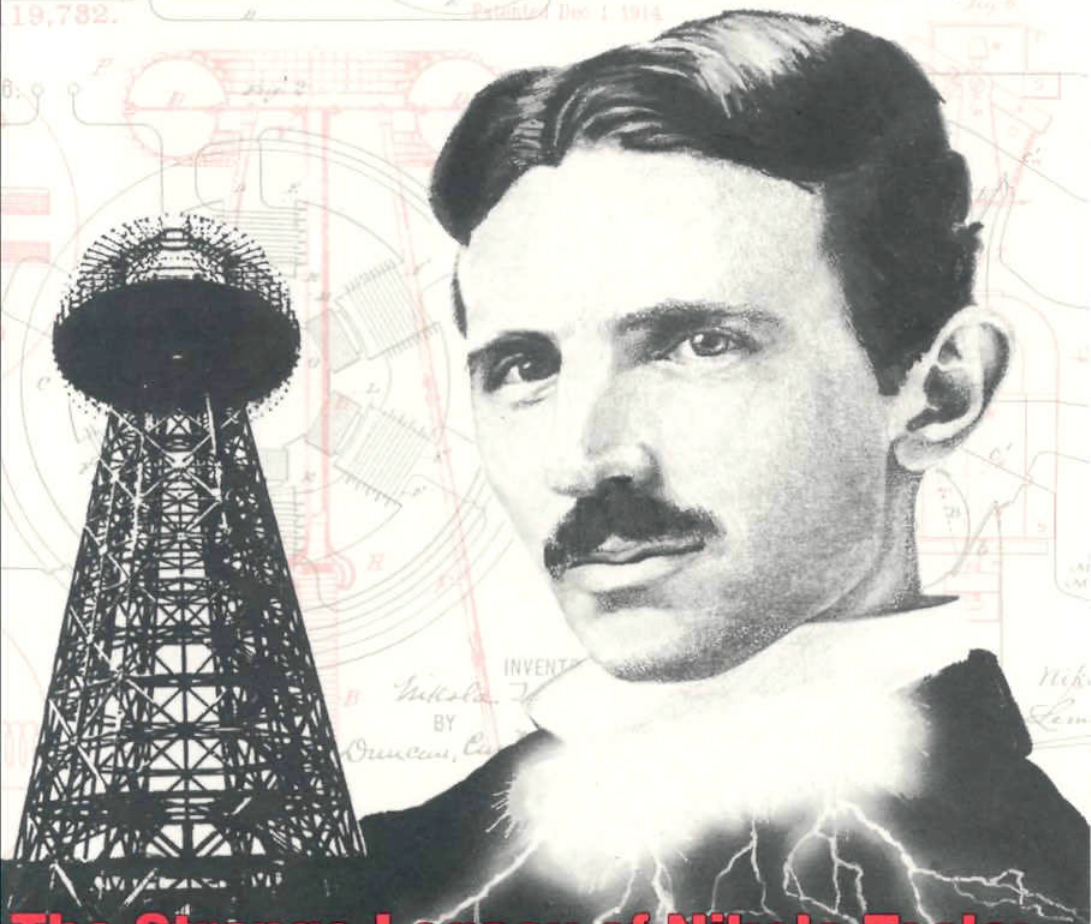

## The Strange Legacy of Nikola Tesla: 'Extraordinary Science'

Examining Jung and Synchronicity

Shroud Pollen Deception

A Study of TV and the Paranormal

Reductionist Science Books

Psi in Psychology

Published by the Committee for the Scientific Investigation of Claims of the Paranormal

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ON THE COVER: Illustration by Bruce Adams.

# News and Comment

## *After 60 Years, the Most Famous of All the 'Nessie' Photos Is Revealed as a Hoax*

Since the first reported sighting of a "huge fish" back in 1868, a debate, fueled by eyewitness accounts and fuzzy photographs, has continued over whether a giant monster roams the murky waters of Loch Ness, Scotland. Believers in the monster legend have often cited the 1934 "surgeon's photograph" as the best evidence for the animal's existence. Over the years, the image had withstood rigorous scientific examination. Explanations ranging from tree trunks to wishful thinking have been offered, but no one has been able to settle the matter conclusively.

Now two Loch Ness researchers have established that the famous shadowy silhouette was merely a plastic wood model attached to a toy

The 1934 "surgeon's photograph" of the "Loch Ness monster."

Sunday Telegraph, London

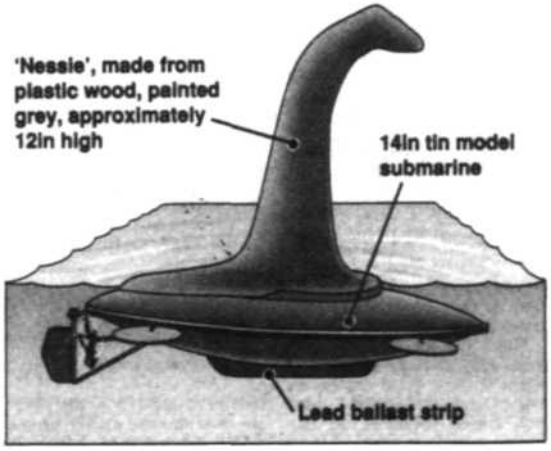
From left: a 1992 photo of Wetherell's stepson Christian Spurling; Duke Wetherell and Colonel Robert Wilson, photographed in 1934.

submarine. Their revelations were first reported in a lengthy front-page article in the March 13 *Sunday Telegraph* (London) and subsequently disseminated by international news services.

The research began after David Martin and Alistair Boyd, both with the Loch Ness and Morar Project, stumbled across a 1975 gossip column that indicated that a Loch Ness monster photograph had been faked. Although the column did not mention Colonel Robert Wilson (the surgeon to whom the 1934 photograph was attributed) or specifically which photograph was being referred to, it did name as co-conspirators Maurice Chambers and Ian Wetherell, the latter the son of a flamboyant actor and film producer from the twenties and thirties, Marmaduke Arundel Wetherell.

Martin and Boyd first attempted to locate Ian Wetherell but discovered he had died some years before. They then contacted Marmaduke Wetherell's stepson Christian Spurling. Although 90 and in poor health, he was able to answer a series of questions.

Back in the thirties, Marmaduke Wetherell, often called "Duke," was hired by the *Daily Mail* to look into the stories that were circulating about a mysterious beast in the loch. On December 20, 1933, after only two days at the Loch, he discovered two large, four-toed footprints on the south shore. Somewhat prematurely, the *Mail* proclaimed, "Loch Ness Monster Is a Fact, Not a Legend," and for two weeks the world waited as




An artist's impression of Christian Spurling's model, from the *Sunday Telegraph*, London.

plaster casts of the prints were analyzed at the Natural History Museum. On January 4, the museum revealed that the two prints were identical and from the foot of a young hippopotamus, most likely being used as an umbrella stand.

Disgruntled and irritated, Duke Wetherell decided he'd get conclusive proof of the illusive beast, announcing to his son Ian: "All right. We'll give them their monster." His son purchased the raw materials—a toy submarine stabilized with soldered lead—while his stepson Christian Spurling sculpted the 12-inch head and neck of plastic wood. After taking eight days to complete the "monster," sea trials were conducted and sometime in February or March 1934 Ian took the photographs at Loch Ness. Duke Wetherell shared the story with his close friend Maurice Chambers, hoping he might know someone convincing enough to lend credibility to the photos. Chambers produced a respected doctor, Colonel Robert Wilson, who agreed to go along with the scheme. Wilson took the plates to a chemist shop, developed the famous photograph, and put into motion what some have called one of the greatest hoaxes of the twentieth century. The photo has appeared in virtually all accounts of the Loch Ness monster ever since.

Despite these amazing revelations, the hunt for Nessie will continue. Adrian Shine, the Loch Ness Project Chief, says he accepts the report of the hoax, but he maintained, "Eyewitness accounts still suggest that there is something powerful in the loch." Surprisingly, even the sleuths who uncovered the scheme agreed with Shine and do not believe that the monster itself is a fraud.

So what happened to Duke Wetherell's monster? Apparently, during one of his attempts with his son to set up a photograph, they heard a groundskeeper approaching and had no choice but to sink the model. (So it seems there really is a "monster" in the Loch Ness after all.)

—*Tom Genoni, Jr.*

## Time *Challenges John Mack's UFO Abduction Efforts*

The widely read "Outlook" section in the Sunday, April 17, *Washington Post* carried a front-page feature article by Harvard psychiatrist John E. Mack with the headline: "ALIEN RECKONING: Many Americans Claim They've Been Abducted by Extraterrestrials. A Once-Skeptical Harvard Psychiatrist Believes Them." If any of the *Post*'s top editorial officials believe there is even one chance in a million that UFO abductions are really occurring, one should expect that they would have assigned a team of investigative reporters to look into Mack's claims—*before publishing his article.* The *Post* could have assigned the story to its Robert Woodward, who played a key role in breaking the Watergate cover-up.

*Time* magazine *did* assign an investigative reporter—James Willwerth—to look into Mack's claims. Less than a week after publication of the *Post* article, *Time*'s April 25 issue provided its readers with a two-page critical analysis of Mack's modus operandi, titled: "The Man from Outer Space."

The *Time* article revealed that one of the "abductees" Mack had worked with—Donna Bassett—was really a researcher who had infiltrated his

"support group." According to *Time*, after reading books and articles on UFO abductions Bassett was able to "recall under hypnosis" for Mack her childhood experiences with an ET friend "named Jane, who healed her hands after a neighbor stuck them in boiling fudge to punish her for snooping."

At one of the sessions, which took place in a bedroom of Mack's house, Bassett told Mack she "recalled" being taken aboard a flying saucer during the Cuban missile crisis, where she saw President Kennedy and Premier Khrushchev, who was crying. She told Mack that, to comfort Khrushchev, she sat on his lap, put her arms around his neck, and reassured him that the crisis would be resolved. "Hearing her tale, Mack became so excited that he leaned on the bed too heavily, and it collapsed," according to *Time*.

When *Time*'s Willwerth revealed to Mack that Bassett had concocted her abduction tales, "Mack declined to discuss her case, though he hinted that he had doubts about her reliability."

The *Time* article concludes: "Mack's view of the UFO phenomenon reflects a larger philosophical stance that rejects 'rational' scientific explanations and embraces a hazier New Age reality. 'I don't know why there's such a zeal to find a conventional physical explanation,' he says. 'I don't know why people have such trouble simply accepting the fact that something unusual is going on here. . . . We've lost all that ability to know a world beyond the physical. . . . I am a bridge between those two worlds.' "

With Mack's widespread appearances on major TV and radio talk-shows to promote his new book, *Abduction: Human Encounters with Aliens*, Mack is displacing his former mentor, Budd Hopkins, as the chief guru of the UFO-abduction cult. Because Mack is a psychiatrist who

THE MAN FROM OUTER SPACE

*Time*'s investigation casts doubts on John Mack's methods.

formerly headed Harvard's department of psychiatry, his claims carry more weight than those of Hopkins, who is a professional artist, or Hopkins's principal deputy, David Jacobs, a history professor at Temple University.

Although Mack credits Hopkins with having introduced him to the UFO-abduction field, and each publicly refers to the other as "my good friend," their relations have deteriorated recently because of their basically different philosophical views on UFO abductions. Hopkins and Jacobs, understandably, view UFO-abductions as evil, traumatic events—comparable to rape.

Mack concedes that abduction victims suffer what he calls "ontological shock" as "the reality of their encounters sinks in." However, as Mack explained in his *Post* article, the net result "is the discovery of a new and altered sense of their place in the cosmic design, one that is more modest, respectful and harmonious in relation to Earth and its living systems. A heightened sense of the sacredness of the natural world is experienced along with deep sadness about the apparent hopelessness of

Earth's environmental crisis." In other words, in the long run Mack seemingly believes that UFO abductions are beneficial to the "experiencers," as he calls them.

—*Philip J. Klass*

## *APA Statement Addresses the Debate Over 'Assisted' Memory*

In response to the ever-growing controversy surrounding the false-memory syndrome (FMS), the American Psychiatric Association (APA) has issued a "Statement on Memories of Sexual Abuse." Although the statement does not include the "body of scientific evidence" on which its position is based, the five-page document does attempt to summarize the available information on the subject for psychiatrists and others working with sexual-abuse issues.

"It is not known how to distinguish, with complete accuracy, memories based on true events from those derived from other sources," the statement says.

Regarding the possibility of adolescent abuse resulting in repressed memories and neurosis, the APA affirms its belief that child sexual abuse is a "risk factor for many classes of psychiatric disorders" and that the coping mechanisms "can result in a lack of conscious awareness of the abuse. . . . Conscious thoughts and feelings stemming from the abuse may emerge at a later date."

While the APA admits that the emergence of memories can aid in assessing abuse claims, it states: "There is no completely accurate way of determining the validity of reports [of sexual abuse] in the absence of corroborating information." Given the current level of scientific knowledge on the subject, the mechanisms of memory are simply far too complicated for the recalling of a personal experience to be confidently relied on for complete accuracy when it has been influenced by expectations, emotions, sensations, stress, and post-event questioning. "The retrieval and recounting of a memory can modify the form of the memory, which may influence the content and the conviction about the veracity of the memory in the future," the statement says.

One crucial element of the FMS debate is centered on the role of the therapist. Many skeptics have claimed that because of the nature of the memory-recalling process, it is easy for a therapist to "lead" a patient, either by accident or design, to "remember" abuse that may or may not have occurred. The APA statement reflects the same concerns: "Memories can be significantly influenced by questioning . . . and it has also been shown that repeated questioning may lead individuals to report 'memories' of events that never occurred." The dangerous consequences that can result from the misuse of this type of therapy were illustrated by a recent $10-million sexual-abuse lawsuit against a Chicago cardinal. The plaintiff ultimately withdrew the suit, citing an eventual lack of confidence in the memories that were initially "recovered" during sessions with a therapist of questionable credentials.

According to the APA, "Psychiatrists should maintain an empathic, nonjudgmental, neutral stance towards reported memories of sexual abuse. . . . A strong prior belief by the psychiatrist that sexual abuse, or other factors, are or are not the cause

of the patient's problems is likely to interfere with appropriate assessment and treatment." The APA warns that therapists without proper training in many areas of care may cause further psychiatric problems for a patient.

In its closing paragraph, the APA statement asserts that "these issues should not influence psychiatrists to abandon their commitment to basic principles of ethical practice." It makes two other points: "Psychiatrists should refrain from making public statements about the veracity . . . of individual reports of sexual abuse" and "Psychiatrists should vigilantly assess the impact of their conduct on the boundaries of the patient/doctor relationship." The APA concludes by declaring that it will continue to monitor developments related to these issues.

The False Memory Syndrome Foundation (an organization skeptical of therapy-assisted memories) commented favorably on the APA statement, although not without some reservations. It applauded the APA position that therapists should remain neutral when evaluating sexual-abuse claims (which the FMS Foundation sees as in direct contrast to the role taken by many recovered-memory therapists) as well as the APA's advice against a psychiatrist's making public statements relating to a patient's case. However, the FMS Foundation requested that the APA make available the specific scientific evidence that it uses to support the existence of and treatment for repressed memories.

—*Tom Genoni, Jr.*

*The full text of the statement, approved by the APA Board of Trustees on December 12, 1993, is available from the APA, 1400 K Street, NW, Washington, DC 20005, telephone 202-682-2000.*

## *New Shroud Developments, Intriguing to Bizarre*

A number of new theories, experiments, and tests relating to the Shroud of Turin have come to light—ranging from the intriguing to the bizarre.

Among the latter is a notion that, before it was the burial shroud of Jesus, the 14-foot length of linen was the tablecloth used at the Last Supper. This idea was advanced by the new wife of pro-authenticity scientist John Jackson (who now heads something called the Shroud of Turin Research Center, in Colorado Springs). She does not appear to be kidding.

Another fanciful idea, proffered by several independent researchers and elaborated in a book being written by two of them, takes skepticism about the shroud into the realm of conspiracy theories. According to the theorists' scenario, the shroud was not merely damaged in the chapel fire of 1532 but actually destroyed; its owners shrewdly substituted a fake produced by none other than Leonardo da Vinci. Proof? Nonexistent. Innuendo and speculation? Offered in abundance.

Much, much more credible is the intriguing work of University of Tennessee forensic researchers Randall Bresee and Emily Craig. According to their article "Image Formation and the Shroud of Turin" in the *Journal of Imaging Science and Technology* (34: 59-67, January-February 1994), reported nationwide by the Associated Press on February 9, 1994, Bresee and Craig's experiments enable them to produce images with macroscopic and microscopic properties comparable to those of the shroud.

Their technique—used by medical

illustrators but not common to mainstream artists—is called carbon-dust imaging. Soft brushes are used to apply pigment to a flat surface that is then covered with a cloth and rubbed with a suitable tool (such as a wooden spoon), thus transferring the image to the cloth. To reproduce the shroud's touted photonegative (actually quasi-negative) properties, Craig explains that "you don't use light and shadow or highlights but build the image with the darkest part being the closest to the viewer (like the tip of the nose on a face) and then . . . lighter and lighter as you work back through the planes of the face."

Craig and Bresee report that their images appear only on the uppermost fibers and exhibit other characteristics typical of the shroud, including "an abundance of accurate three-dimensional information." According to Bresee, his study of the shroud has "turned out to be a real interesting problem with religion mixed up with science. Beliefs have gotten in the way of an awful lot of people," he said.

He might well have been describing the late scientist Max Frei's reputed pollen evidence—characterized elsewhere in this issue as "a study in deception."

—*Joe Nickell*

*Joe Nickell, CSICOP Fellow, is author of several investigative books, including* Inquest on the Shroud of Turin.

## *Alternative Science Update: Coast Guard Sails into the New Age*

The Strategic Planning Staff of the U.S. Coast Guard figured they could do a better job of planning if they knew where the world is headed, so they hired the Arlington Institute to tell them. The result was "The Road to 2012," 348 pages of clairvoyance. It is very informative.

One learns, for example, that we will be able to tap the zero point energy in the vacuum. The technology for this is, the report says, "revolutionary," but, alas, it is protected by international patents. "Cold fusion," the report says, may simply be a manifestation of zero point energy.

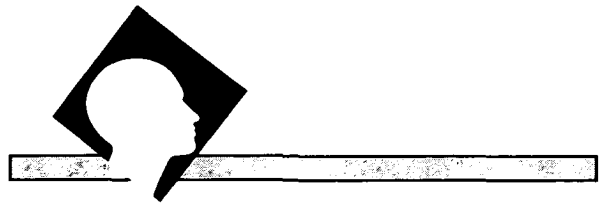
It gets even more exciting: "Dozens of studies have shown that the prayers and meditations of widely separated individuals correlate with significant improvement of the health and well-being of others." (Presumably it also works if they are close together.) "The well-known phenomenon of dowsing may be a spontaneous twitch of muscle as one is moving over a geological gradient due to variations in extremely low intensity geophysical fields." And: "Herpes has been linked to loneliness." Everyone else recommends being alone as a sure-fire preventive. "Remote perception, or the ability to ascertain information nonlocally, has been demonstrated. . . . Mind interacting with matter transcends the limitations of ordinary space-time."

To perceive what this report cost, we were able to transcend the space-time limitations of the U.S. Coast Guard bureaucracy using nonlocal means (the telephone). The cost to the taxpayers was $100,000.

—*Robert L. Park*

*Robert L. Park is director of the Washington office of the American Physical Society. This is from the APS's "What's New" weekly electronic newsletter and is published with permission.*

# CSICOP News



## *Watch What You're Thinking! The Skeptic's Toolbox II Conference*

STEVEN GOLDSTEIN

There are three colored balls on the table in front of you. One red, one yellow, one green. The man with the dark hair and the dark, penetrating eyes standing behind the table stares at you intently—so intently, in fact, that for a brief instant you find yourself wondering whether he is actually trying to read your mind. Still looking right at you, he boldly says that he knows which ball you are about to select. You know this is impossible, of course, and yet that conviction seems to waver ever so slightly as you watch him confidently jot down a prediction on a slip of paper and place it aside. He looks back at you, and as you find yourself trying to somehow mentally resist the man's powers, you are shocked to find that the ball you subsequently select is indeed the one he predicted you would.

So began CSICOP's second Skeptic's Toolbox conference, in Eugene, Oregon. The above demonstration—along with other feats of mental wizardry—was performed as part of the kick-off dinner by Bob Fellows, a professional mentalist and consultant on mind-control techniques.

We all recognize this demonstration as a simple magic trick, of course, even though we might not know how it is done. And yet, as Fellows pointed out, the effect of such tricks on audiences who are prepared to believe them real can be enormously powerful. And, when deceit is involved, they can be potentially very harmful as well.

It is because of this duality—the surface simplicity of psychological manipulation and the power of the effect—that this little parlor trick served as a metaphor during the entire conference for the many ways that people are able to deceive others—sometimes unintentionally, but often with purpose, and often to devastating consequences.

### *The Case for Cases*

Organized by Ray Hyman, CSICOP Fellow and professor of psychology at the University of Oregon, and Barry Karr, executive director of CSICOP, the five-day Skeptic's Toolbox conference held August 19-23, 1993, built on the successes of a similar workshop held in Eugene the previous year (*SI*, Winter 1993). Much like the earlier conference, the objective of the 1993 session was to help skeptics add to their arsenal of tools and techniques with which to both guard against deception and properly evaluate paranormal claims.

To that end, the conference was structured on the premise of *case-based*

*reasoning*, in which participants were presented with a small set of prototypical problems and their solutions. Characteristics of these cases could then be matched to new problems, either suggesting similar paths toward resolutions or adding to a databank of new prototypes and situations.

As Hyman pointed out, the benefit of the case-based approach is that concrete examples are used to build good models as a first step toward extracting broad principles. This can make the learning experience much more meaningful than if critical thinking skills alone were taught, without the benefit of context.

*A horse is a horse, of course?* The case of Clever Hans as an investigation of animal intelligence is well documented; the claim was that the horse Hans, after having a mathematical or word problem spoken to him by his owner, would be able to correctly tap out the answer with his hoof. Many experts at the time—police officers, scientists, and animal experts in turn-of-the-century Germany—saw Hans in action and were convinced that his intelligence was genuine.

What is not so well known or appreciated about this case is the extent of the investigation undertaken to examine this claim. Ray Hyman, who led the session, told how Oskar Pfungst went beyond simply demonstrating that the horse possessed no academic abilities. Pfungst not only identified the exact cues that guided the horse but also conducted a variety of experiments to ultimately understand completely every aspect of the case. The result was a debunking so thorough that today, almost a hundred years later, it is still believed by many to be the best example of a skeptical investigation in history.

*"He went kinda paranormal on me."* That's how Jerry Andrus—magician, iconoclast, and perhaps the world's foremost inventor of amazing optical illusions—described the reaction of an otherwise rational observer who began to express belief in his dowsing demonstration. Indeed, when viewing Andrus's mind-bending illusions, many of which were on display at the conference, it is sometimes tempting to seek such "extra-normal" explanations. How else to explain the Trizonal Space Warp, for example, a spinning set of patterns that do weird things to one's sense of sight? Or two oversized metallic-like nuts, connected in such a way that a solid, straight rod is seen to bend in order to go through them?

To Andrus, the point of demonstrating these illusions is not merely to show that we can be easily fooled because "things are not always what they seem." Rather, it is to appreciate that the human mind is in fact working correctly in these instances, and to help us understand the circumstances in which this knowledge is important. We look at a car parked on the street and, without thinking about it, we assume that the part of the car we *can't* see is there, too; our brains *have* to do this so that we can make sense of the world around us. And yet, when we see two people of differing heights standing facing each other on a level plank, and then *change heights* by simply changing places, we find it valuable to ask whether our eyes are playing tricks on us. (The explanation of this illusion appeared in the Spring 1994 *SI*.) As Andrus often proclaims, we sometimes "come to the wrong conclusions for the right reasons."

*When the write stuff is wrong.* Can one's handwriting reliably say anything about oneself? Can it be used to make decisions on hiring, career choice, marital compatibility, or honesty? What claims do the practitioners of handwriting analysis make?

These were some of the questions

explored in the session on graphology, led by Barry Beyerstein, professor of psychology at Simon Fraser University (Vancouver, B.C.) and a member of CSICOP's Executive Council. Beyerstein pointed out that graphology is much more widely used in Europe than in the United States; in France, in fact, job seekers are virtually disqualified from hiring consideration if they submit a letter that is typed or computer-generated, as opposed to handwritten.

Beyerstein approached his examination of graphology with scientific questions: "Is there sufficient information in handwriting to allow reliable measurement of personality, aptitude, or health?" for example. And practical questions: "Is graphology justified in influencing lifestyle decisions?" "Does a graphologist need to be trained?" and so on. In all cases, the results showed that as a "divinatory art," graphology is nothing more than a warm, fuzzy brand of sympathetic magic.

Like astrology, graphology seems to rest on the notion of "pareidolia": the human infusion of patterns or meaning on random audio or visual events. In the case of handwriting analysis, this might be the idea that writers of large capital I's are egotistical, or those having varying slants are unpredictable.

Graphology as a discipline? Beyerstein found numerous objections: the lack of standardization in training; lack of commitment to research; absence of links with other relevant disciplines; a tendency to self-publish rather than submit results to refereed journals; and a distinct dearth of progress in the field. All of which gives pause, granted the rising popularity of this phenomenon.

Jerry Andrus amazes Skeptic's Toolbox II seminar attendee with one of his illusions.

## *Thinking About Thinking*

The workshop also offered sessions with more general topics:

*Being fooled.* This session was conducted by all five members of the conference faculty. Each related accounts and experiences of how humans are deceived. Ray Hyman noted that with few exceptions the field has been little studied since 1900. One reason may be that deception is difficult to classify, precisely because such attempts at structure are rarely flexible enough to accommodate new changing paradigms.

One example involves optical illusions. Hyman pointed out that, while psychologists like to explain phenomena in terms of a single cause, deception in general is caused by many factors, operating at many different levels. Among the reasons people are fooled, he said, are cognitive limits to perception, a distortion of the representation of knowledge, and the power of a particular social situation.

Social factors can contribute heavily to the persuasive influence of a presentation, Bob Fellows pointed out. In the 3-card monte street con, for example, the skill of the operator is less important than the psychological environment created by the shills. Similarly, the secret of Uri Geller is not how he bends keys, but how, as Hyman pointed out, he "bends minds."

From such scenarios, and others, we may extrapolate "demand characteristics" that play a part in the ease with which people can be manipulated: the expectation that people are supposed to answer questions in a telephone interview, for instance; the notion that guests do not complain; the idea that true believers believe; and the feeling that experts must know the truth. Once again we are reminded, Fellows noted, that we need to be careful when placing authority outside ourselves.

*The special case of parapsychology.* Led by Ray Hyman, this discussion centered around the fact that parapsychology, as distinct from other paranormal activities, is essentially a scientific enterprise. Its practitioners are serious scientific researchers, often at the Ph.D. level, and most are trained in the disciplines of statistics and experimental design.

Hyman sketched a brief history of the field, beginning with the formation of the Society for Psychical Research in the 1880s, through J. B. Rhine's Parapsychological Society of America in the 1930s (and continuing today), to the current status of the ganzfeld experiments, which are touted by the parapsychological community as being the most promising development in the field.

The problem with most parapsychologists, noted Hyman, is that after the dust settles on an argument they still have hope that "something is there." A skeptic's position, on the other hand, is not anti-psi; it's agnostic. A skeptic's "belief" is that a claim has a normal explanation.

Hyman noted that there have been several prominent parapsychological researchers—Charles Akers and Susan Blackmore, to name two—who have left the fold after finding no results, often after having devoted many years of serious study to the cause. Unlike these few, however, many remain committed, not necessarily to scientific inquiry, but to their own agendas. Hyman related the comment of a colleague: "If parapsychologists had been doing their jobs responsibly, there never would have been a need for CSICOP."

*The esoteric brain.* "A sudden, usually unexpected alteration of consciousness so intense as to be overwhelming"—this definition of *transcendence* was a central theme in this session, on the inner workings of the brain, led by Barry Beyerstein.

Beyerstein outlined the ways that different psychological states—and their corresponding brain functions—can account for intense personal experiences, such as out-of-body episodes. For example, certain transcendent experiences can be caused by the abnormal brain states associated with various medical conditions, such as epilepsy, schizophrenia, and Tourette's Syndrome. Similarly, discipline-induced causes, such as deep meditation, hypnosis, ritualistic chanting, and self-mutilation rites, can

also produce transcendence. Even "normal" arousal phenomena—sleep or sensory deprivation, fatigue, fasting, or emotional trauma and injury—may be responsible for altered states.

Beyerstein also identified the part of the brain in which these activities have been isolated. The limbic system, responsible for the mind's emotional modeling of reality, has been shown to be the primary area for the "electrical short-circuiting" that is often associated with the states mentioned above. All of which supports the millennia-old notion of that old country doctor, Hippocrates, who first postulated that it is indeed the brain that is the originator of all emotions and experiences.

*Getting the message across.* Bob Fellows offered some insight into the communications process and how skeptics can be more effective in making an argument. People on different sides of a discussion, he said, may think equally well, but may have different premises. Motivational speakers are aware of this and will try to change their subjects' premises.

In one-on-one situations, skeptics need to keep an open mind and practice active listening to decode what a person says. It is also helpful to make "I" statements when describing a behavior or feeling ("I'm not comfortable with that") and not to condescend or to humor the believer.

In presenting to larger groups, it's important to personalize a topic and to try to invest it with some originality. Following the guidelines of good story-telling is also good advice: know what your point of view is, make your story human, and give it a structure, such as raising a question, repeating the premise, and resolving the issues.

## *The Case for Tools*

The conference wrapped up with some final thoughts on the cases and how to apply them. This included a discussion of the difference between skeptics and believers and ways to improve communication between the two. Whereas skeptics search for truths, believers tend to want validation of their experiences. But while skeptics are usually advocates for *general* themes and ideas, such as clear thinking, open-mindedness, and education, they ask believers to give up something specific when trying to make a case. It is for

Ray Hyman demonstrates dowsing at seminar.

reasons like this that a solid toolbox of skeptical principles and communication techniques can be extremely valuable.

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## ☐ *Two New Fellows Elected to CSICOP*

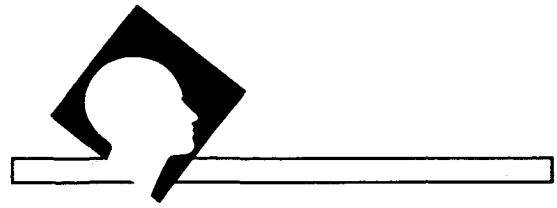
Two more scientists have recently been elected Fellows of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP):

- Thomas Gilovich, associate professor of psychology, Cornell University. His research and teaching interests include sources of erroneous beliefs, cognitive illusions, misperceptions of randomness, and social judgment. He is the author of *How We Know What Isn't So: The Fallibility of Human Reason in Everyday Life.*
- Jill Cornell Tarter, Senior Research Scientist, the SETI Institute, Mountain View, Calif. She is an astronomer and a leading researcher in the search for extraterrestrial intelligence. She is currently project scientist for Project Phoenix. This is the new privately funded SETI program born out of the ashes of the recently canceled NASA High Resolution Microwave Survey (previously known as SETI), for which she was also project scientist. She has received two NASA Public Service Medals.

In addition, we welcome a newly elected Technical Consultant of CSICOP.

- Michael R. Dennett, writer and investigator, Federal Way, Washington. He has long been active in examining claims of Bigfoot creatures, psychics, UFOs, and so on. He's a contributor to the newly published *Psychic Sleuths* (Prometheus Books). His work has frequently appeared in the SKEPTICAL INQUIRER. □

# Research Reviews



## Psi in Psychology

SUSAN BLACKMORE

"Most academic psychologists do not yet accept the existence of psi." So begins the abstract of an important new paper on parapsychology.

The claim is undoubtedly true, and many readers of *SI* will think it ought to stay that way. Yet this quotation implies that the psychologists in question might soon be changing their minds.

It comes, not from a tirade against the skepticism of academia but from an article just published in one of psychology's most prestigious academic journals, *Psychological Bulletin*.

Titled "Does Psi Exist? Replicable Evidence for an Anomalous Process of Information Transfer," the article is by parapsychologist Charles Honorton (who died in 1992—see *SI*, 17: 306-308, Spring 1993) and Cornell psychologist Daryl Bem. Bem's high profile and the respect he is accorded by psychologists will ensure that this article is taken seriously and that perhaps some of them will begin to wonder about psi.

So how good is this "replicable evidence"? Is it sufficient, as the authors claim, to suggest the existence of "anomalous processes of information or energy transfer (like telepathy or other forms of extrasensory perception) that are currently unexplained in terms of known physical or biological mechanisms"?

The evidence in question is an overview of research on the ganzfeld. This technique of partial sensory deprivation of subjects in ESP experiments, pioneered by Honorton in the mid-1970s, produced the great Ganzfeld Debate in the mid-1980s (Hyman 1985; Honorton 1985; see also *SI*, 10: 2-7, Fall 1985), and finally culminated in fully automated testing procedures (Honorton et al. 1990). The paper reviews the various meta-analyses of ganzfeld findings and, as Honorton has done before, argues that obvious problems like multiple analysis, selective reporting, and methodological flaws cannot be responsible for the high replication rates. It then presents data from "11 new ganzfeld studies."

In 1988 the National Research Council produced a report on enhancing human performance that included a highly negative conclusion on parapsychology (Druckman and Swets 1988; see *SI*, 13: 34-45, Fall 1988). Bem and Honorton have some new light to cast on this report that might seem out of place in an academic article. The NRC apparently solicited a background paper from Harris and Rosenthal, and this paper noted the impressive ganzfeld results. According to Bem and Honorton, the chair of the NRC committee telephoned Rosenthal and asked him to delete this

section of the paper. Rosenthal refused to do so, but the section in question did not appear in the final NRC report.

This is troubling indeed if it means that prejudice is coming before genuine scientific inquiry. It serves more than anything to highlight how difficult it is to stick to purely scientific issues in this controversial area.

Bem and Honorton also accuse the NRC report of not being an independent examination of the ganzfeld because it was heavily based on Ray Hyman's original critique. As for their own paper, I would say it could also be misleading. The strength of some of Hyman's arguments is not at all apparent and the impression is given that many laboratories have found replicable effects.

This claim receives some support from Honorton's analysis, which shows that the overall effect does not depend on just one or two labs. Nevertheless, by far the greatest number of studies were contributed by just two researchers. Out of 28 studies, Honorton contributed 5 and Carl Sargent, at Cambridge, 9. So Sargent's are by far the largest number of studies. However, I have shown (Blackmore 1987) that there were very serious problems with nearly all of Sargent's ganzfeld studies. By failing to mention this, Bem and Honorton imply that these nine studies are reliable research.

The story of my visit to Sargent's laboratory is no secret. I went there to try to find out why Sargent was successful with the ganzfeld while I was not. I observed 13 sessions, of which 6 were direct hits. I then considered whether the hits might be due to sensory leakage, experimental error, fraud, or psi, and made predictions based on all these hypotheses. I was satisfied that sensory leakage was not a problem but found serious errors in the randomization procedure. This cumbersome procedure required sets of sealed, unmarked envelopes containing letters specifying the target selection (Sargent 1980). On the basis of my various hypotheses I predicted specific errors in the placement and contents of some of these envelopes and, when I was able to open all the envelopes, I found several such errors. I published the findings and Sargent and his colleagues responded, claiming that they were due to minor experimental error (Harley and Matthews 1987; Sargent 1987).

Whatever one's favored interpretation, it is my opinion that these problems are serious and we should not consider Sargent's studies a valid part of the ganzfeld database. It may be for this reason that parapsychologists now rarely cite them as evidence for psi. So I was disappointed to find that Bem and Honorton did not mention this at all.

They then go on to provide data from "11 new ganzfeld studies." This will perhaps give readers the impression that the data are being presented for the first time. In fact they were previously published, in almost the same form, in the *Journal of Parapsychology* in 1990 (Honorton et al. 1990).

Admittedly they are impressive and deserve presentation to a wider audience than the readers of parapsychology journals. They are the series of experiments using the autoganzfeld—or fully automated ganzfeld system. This was designed to meet the "stringent standards" set by Hyman and Honorton (1986) in their joint communique—which ended the great Ganzfeld Debate.

In this new paper Bem and Honorton claim that these "stringent standards" have been met—a view with which I widely concur. As the experiments are presented here, and in the

Tom Flynn

In a ganzfeld experiment, a subject relaxes in a chair in a soundproof room with half a Ping-Pong ball taped over each eye. The only sound is white noise coming from the headphones. At the same time, in a series of trials, a "sender" in another room is given a set of four pictures and asked to concentrate on one. No one else knows which pictures are chosen until the experiment is completed and the subject has reported any impressions he "received."

previous 1990 paper, there are no obvious methodological flaws. The results are highly significant and the effect size is comparable to that found in previous ganzfeld studies. There is also confirmation of findings that emerged from earlier meta-analyses. For example, selected subjects who are artistic and believe in psi do better than unselected subjects. They do better when friends act as senders and dynamic targets are better than static ones.

I think one's response to this should be optimistic. The work so far looks promising—let's see whether the results can be replicated by other researchers.

Honorton is no longer with us, but fortunately he was in Edinburgh long enough to help set up the autoganzfeld there for others to continue. Just a few months ago the first results were reported at the Society for Psychical Research annual conference in Glasgow (Morris et al. 1993).

# Ray Hyman Responds to Bem and Honorton

Bem and Honorton's *Psychological Bulletin* paper is followed in the same issue by a six-page critique from Ray Hyman, Department of Psychology, University of Oregon ("Anomaly or Artifact? Comments on Bem and Honorton," pp. 19-24).

States Hyman:

> Although the autoganzfeld experiments are methodologically superior to previous parapsychological experiments, the tests of their randomization procedures were inadequate. The autoganzfeld experiments consistently produced positive hit rates, whose combined effect was highly significant. However, these experiments produced important inconsistencies with the previous ganzfeld experiments. They also showed a unique pattern in the data that may reflect a systematic artifact. Because of these unique features, we have to wait for independent replications of these experiments before we can conclude that a replicable anomaly or psi has been demonstrated.

Hyman concludes: "The autoganzfeld experiments are a praiseworthy improvement in methodological sophistication and experimental rigor over the previous ganzfeld experiments. Despite these improvements, the experiments fall disappointingly short in the critical area of justifying the randomization procedures. Even though all but one of the individual studies produced a positive effect size and the overall effect was significant, the autoganzfeld experiments do not constitute a successful replication of the original ganzfeld experiments." Hyman says Bem and the parapsychologists' optimism should encourage investigators to attempt replications, and "these replications will eventually decide the issue."

Bem follows Hyman's critique with his "Response to Hyman," (pp. 25-27), in which he says: "I argue that our claims about the consistency of the autoganzfeld results with the earlier database are quite modest and challenge his [Hyman's] counterclaim that the results are inconsistent with it. In response to his methodological point, I present new analyses that should allay apprehensions about the adequacy of the randomization procedures." □

Two pilot experiments were reported. In the first, 16 unselected subjects, with friends as senders, tried to detect both dynamic and static targets. Results were at chance. In a second study 32 subjects were selected for artistic or musical ability and a positive attitude toward psi. They were tested in pairs using dynamic targets. This time the hit rate was over 40 percent (25 percent is expected by chance), which is comparable to Honorton's previous results.

What can we now conclude? These were only pilot studies carried out by students and they used a ganzfeld

setup that was not quite completed. Will these results continue when the promised refinements are in place? Will the final setup really rule out methodological flaws and the chance of experimenter or subject fraud? I await the next set of results with more than bated breath.

In my opinion Bem and Honorton have overstated the strength of the earlier ganzfeld evidence. They have completely ignored the problems with Sargent's work and understated some of Hyman's objections. However, I agree with them that the autoganzfeld procedure appears sound and the results are important. It is too soon for those "academic psychologists" to change their minds about psi, but it is no bad thing that they have been given the chance to consider it.

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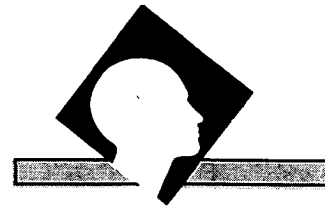
## A Repertoire of Rationalizations

A curious fact about the recent left-critique of science is the degree to which its instigators have overcome their former timidity or indifference toward the subject not by studying it in detail but rather by creating a repertoire of rationalizations for avoiding such study. Buoyed by a "stance" on science, they feel justified in bypassing the grubby necessities of actual scientific knowledge.

—Paul R. Gross and Norman Levitt, *High Superstition: The Academic Left and Its Quarrels with Science* (Johns Hopkins University Press, Baltimore, 1994 [p. 6])

# Notes of a Fringe-Watcher



MARTIN GARDNER

## *Eyeless Vision*

For four decades Ronald Coyne (pronounced "coin"), a Pentecostal preacher who lives in my hometown of Tulsa, Oklahoma, has been wowing church groups with what magicians call an "eyeless vision" act. But first a little background.

For centuries conjurors have known how difficult it is to blindfold a person so effectively that he or she cannot obtain a peek down the side of the nose. Noses project so far from the cheekbones that an opaque blindfold, covering nose and eyes, invariably leaves two tiny loopholes. This is not the only method of obtaining vision while seemingly securely blindfolded—magic shops sell a variety of blindfold tricks—but it is the simplest, and one still unknown to the public.

Magicians using the nose peek usually add other dodges to strengthen an audience's belief that they cannot possibly see. Powder puffs or silver dollars may be placed over the closed eyes and fastened down with tape. Eyelids may also be taped shut.

Kuda Bux, a magician from India, was famous for his eyeless-vision act. Because he is no longer living, and no performer now uses his method, I will explain here, perhaps for the first time, exactly how he managed to see.

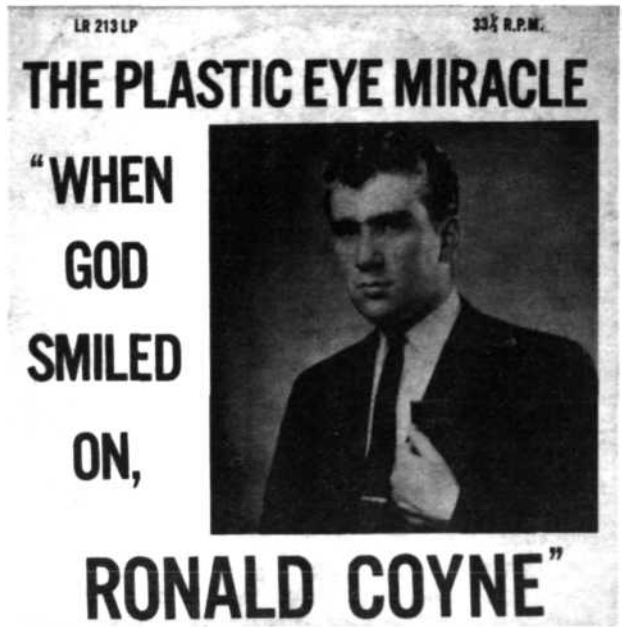
After large globs of soft dough were pushed over Kuda's eyes, a black blindfold was tied over the dough. Assistants then wrapped his entire head with a long strip of cloth of the sort used to make turbans. The cloth swathed his entire face from chin to forehead, giving him the appearance of a mummy.

After his face was swathed, Kuda would raise his hands to adjust the portion of the cloth that crossed his nose. Beneath his fingers, his thumbs, unseen by the audience, would push up through the dough, along the sides of his nose, to form two tunnels that reached to the inside corners of his eyes. In a few more minutes the dough would harden, leaving permanent passages through which both eyes could peek.

Now back to the Reverend Coyne. In 1950 in Sapula, a town close to Tulsa, young Ron (then seven) accidentally slashed his right eye with baling wire. His parents rushed him to Tulsa's St. John's Hospital where an ophthalmologist tried to save the eye by surgery. This proved impossible. The eye was removed and a plastic eye substituted. Three months later Ron was "saved" in a rousing conversion experience during the altar call at a local Baptist vacation Bible school.

For ten months Ronald was totally blind in his right eye. Daisy Gillock,

wife of an Assembly of God pastor in Odessa, Texas, and sister of the well-known Pentecostal faith-healer T. L. Osborn, came to Sapula to conduct a revival. During the faith-healing part of the service, young Coyne followed others to the platform. Not knowing Ron's right eye was false, Daisy Gillock prayed that sight in the eye be restored. As Coyne tells us in his literature, he at once began to see with the plastic eye—first the altar steps, then the microphone and his fingers.



This long-playing album, recorded in the mid-sixties, presents one of Ronald Coyne's entire acts.

This miracle, reported by Tulsa's two newspapers, caused a sensation in the area. Coyne claims that his mother, a devout Christian, accepted the miracle at once; but his father, a professed atheist, refused to believe until one day when Ron asked his dad to blindfold his good eye. After seeing and hearing Ron read print with the other eye, the father was so stunned that he was instantly saved.

Soon young Coyne was appearing in nearby Pentecostal churches to demonstrate how well he could see when his good eye was "securely" covered. From that day to this, more than 40 years, Coyne has been presenting his sensational act to believers all over America, and even abroad.

If you send a dollar to Ronald Coyne Revivals, 3702 E. 51st Street, Tulsa, OK 74135 (phone: 918-744-0309), you can obtain Coyne's life story in a 77-page booklet, *When God Smiled on Ronald Coyne*. It was written by his mother in 1952. For four dollars you can buy a long-playing album with the same title. Recorded in the mid-sixties by Loyal Records, a Birmingham, Alabama, company, its two sides present one of Coyne's entire acts, complete with background organ music and shouts of Glory to God, That's Right, Praise the Lord, and Thank You Jesus. You can even hear Coyne belt out the lyrics of "Only Believe."

The front cover of this album shows a photograph of a handsome Ronald clutching a Bible. On the back cover are these stirring words by Walter Bailes, president of the recording company:

> Can you imagine the shock it must have given a seven-year-old boy to be told that he must have an eye removed from the socket forever because of an injury to that eye and that it would be replaced by a plastic eye. Can you imagine the hurt that a praying, God-fearing, trusting mother must have felt at the news. Think of how this must have added

even more doubt to an already atheist father. But wait a minute! The story doesn't end here. In fact this is only the beginning. But Ronald tells it so much better himself on this album. I would like to say though that I have personally witnessed this miracle of his seeing through this plastic eye and know that it is a work of the One who created all things.

Now in his fifties and grossly overweight, Coyne is still flimflamming the faithful. In 1989 the tabloid *Weekly World News* (August 15) featured him on its front page. The inside interview, by Ross Johnson, quoted Coyne as follows:

> The Lord is a mystery. Men cannot understand Him. I often wonder why He gave this miracle to me instead of all the other people who need to be healed.
>
> In fact, the first thing I'm going to ask when I get to heaven is: "Why me, Lord? Why me?"
>
> It's an abnormal thing that goes against everything that is taught by medical science. If a doctor who's a Christian sees me with the glass eye, he'll say, "It's a miracle of God." If a doctor who isn't a Christian sees me read he'll say, "The man really is reading—just don't give me any of that God stuff."
>
> Nobody can understand it. Some people try to fight it. But everybody agrees that they've never seen anything like it. I'd say 99 percent of them accept it as the divine miracle that it really is.

Louisiana skeptic Henry Murry attended one of Coyne's performances on April 28, 1989, in a tent on Highway 10 near Jackson, Louisiana. His account of the show appeared in the May-June 1989 issue of *La Raison*, a publication of Baton Rouge skeptics. Murry says at 6:45 P.M., before Coyne arrived, he was subjected to "an hour of electronic noise, accompanied by foot-stomping, hand-clapping, and a wide range of vocal sounds."

Reverend Coyne began his act at eight. Money collections were made before and after the performance while he sat on two chairs because his weight seemed more than 400 pounds. "As he began to preach," Murry writes, "his thunderous voice hinted that he may have learned to whisper in a saw-mill."

Coyne began by recalling sinners who had been saved by Jesus from the eternal flames of hell. His numerous Bible quotes were met with loud amens, hallelujahs, and praise-the-Lords. An elderly woman was called to the platform. After holding her hands and jabbering in the Unknown Tongue, Coyne suddenly yelled "Now!" The poor woman fell backward, "slain by the Lord," into the arms of two women behind her. For five minutes she lay on the floor, arms upraised, lips trembling. A dozen others were similarly "slain."

The show's second half was Coyne's long-practiced act. A borrowed handkerchief was folded and taped over his good eye. "I was seated about twenty feet in front," Murry writes, "and even with my poor eyesight I thought I could see the tape come loose under the eye." With his artificial eye, apparently now made of glass, Coyne read aloud Kipling's "Gunga Din," as well as social security numbers, driver's licenses, and other items handed to him. One woman fell into a trance after he correctly read her driver's license.

Coyne then proceeded to "heal" anyone who came forward with an ailment. A skeptic who had accompanied Murry to the show raised his hands to declare himself an atheist who did not believe Coyne was actually seeing with his glass eye. Unflappable, Coyne calmly said, "The

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AIDS is killing off the world's vampires!
Dead granny found in freezer — under frozen peas, corn and TV dinners!
HOW TO LOOK 10 YEARS YOUNGER IN JUST 10 DAYS!

Front page of *Weekly World News*, August 15, 1989.

Lord will destroy you, probably on your way home this evening." I should add that Coyne likes to pop out his artificial eye and continue reading with the empty socket.

To make sure Coyne was still performing, I wrote to ask. "Yes," Coyne replied in a handwritten note, "we are still working and traveling for Jesus. I will look to hear from you." Signed "In Him, Ronald Coyne."

When I accuse Coyne of using a nose peek, I am unworried about libel action. Truth is not libelous. Coyne would have to prove in court that he can see through his eyeless socket after an expert covers his good eye so thoroughly that no nose peek is possible. This, of course, Coyne cannot do.

One of the saddest aspects of Protestant fundamentalism is that so many evangelists who are nothing more than greedy con artists are able to take millions from the generous contributions of gullible believers. Steve Martin's marvelous film *Leap of Faith* (1993) is about just such a

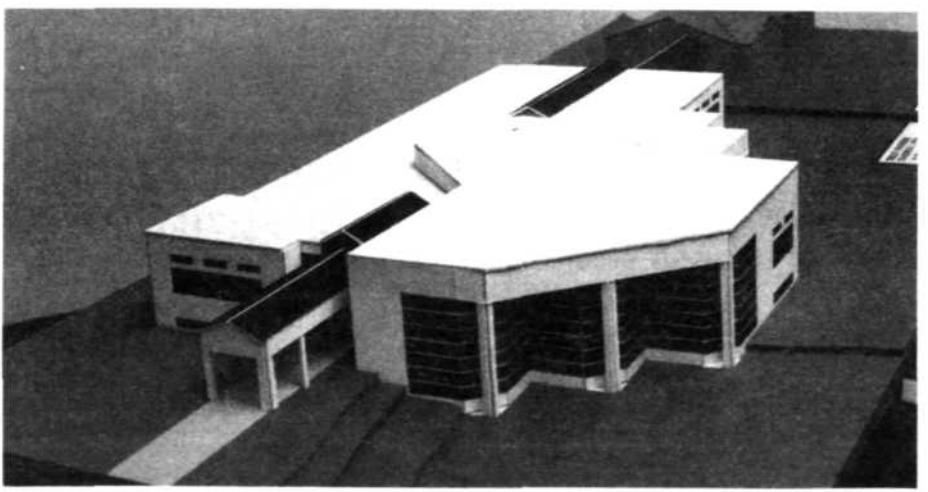
# HEADQUARTERS CAMPUS FOR CSICOP AND THE SKEPTICAL INQUIRER

Taking advantage of interest rates, before they escalate further, and a soft construction market, we have begun construction of the Center for Inquiry, Phase II. This is the long-awaited completion of CSICOP's headquarters campus, consolidating SKEPTICAL INQUIRER's Buffalo-area administrative, editorial, production, and warehousing activities in one efficient facility.

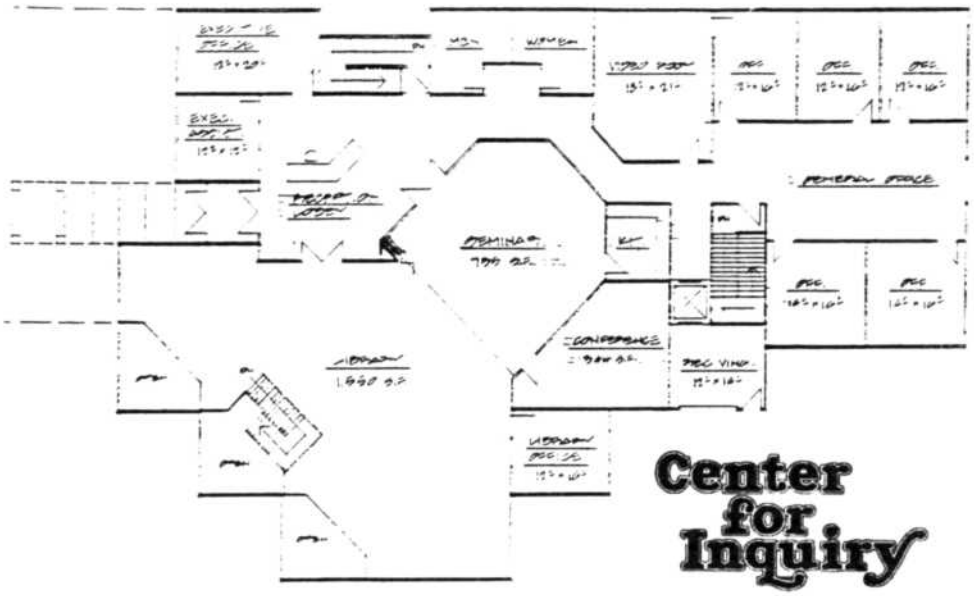
Ground-breaking was held May 21, 1994, and the plan is for occupancy in early 1995.

Located adjacent to the State University of New York at Buffalo's Amherst Campus—the largest campus of the nation's largest state university system—the Center for Inquiry will provide the permanent, multi-purpose home base that the skeptical movement has long required.

Numerous opportunities exist for contributions and the naming of rooms and structures after friends or loved ones. The CSICOP Library and the Center for Inquiry itself still remain to be named.



Preliminary architect's model of the Phase II building.




Floor plan of the new building, to be completed in early 1995.

# Construction Now Under Way!

- New building on two floors, expandable for the future
- Eye-catching *new* contemporary design
- Will house the world's largest skeptical library—computerized catalogue accessible via modem from anywhere in the world
- Conference and seminar facilities, with full audio-visual support
- Dedicated audio-video-TV production and duplication facility. For larger productions, multimedia conference room converts to 3-camera television studio
- Additional, efficient office space to provide for CSICOP's past and future growth

# Construction Cash Is Still Short

We will realize important savings by starting construction now, although our "Price of Reason" Capital Fund Drive is still in progress. Under Co-Chair Martin Gardner this campaign has reached more than 65 percent of the CSICOP/CODESH construction and endowment goals. To maintain our momentum, additional cash gifts for construction are urgently needed.

Martin Gardner

Please support the "Price of Reason" Capital Fund Drive today. For more information, use the postpaid response card in this issue or contact CSICOP today at 716-636-1425.

hustler.

The film is based mainly on the shattered career of faith-healer Peter Popoff. Popoff pretended to have supernatural powers, given to him by the Holy Spirit, to know details about the lives and ills of persons called up to be healed. In reality, as discovered and exposed by James Randi, the Reverend Popoff was receiving this information through a hidden earpiece. His wife and assistants would go through the audience, prior to the show, and converse with spectators. Later, from a trailer outside the auditorium or tent, Elizabeth Popoff, seated in front of a television screen showing the platform, would relay this information to her husband.

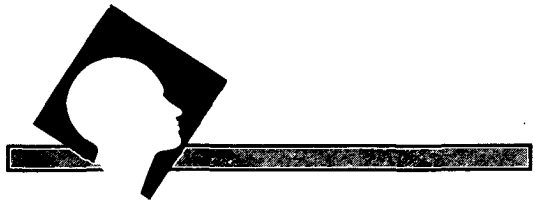
Combine the hypocrisies of Popoff and Coyne with the tears and swaggers of Jimmy Swaggart, and you have Steve Martin's phony evangelist. Not until a crippled boy is genuinely made to walk is the healer stricken with remorse—remorse intensified by the desertion of his girlfriend, subtly acted by Debra Winger.

One of his clever "miracles" is secretly painting open eyes on the closed eyelids of a giant wooden Jesus, nailed to a cross behind the tent's platform. This was an invention of the script writers, but such a miracle is not far from those perpetrated by actual faith-healers. Marjoe Gortner, who began his Pentecostal career as a child evangelist at the age of four, made an appalling documentary in 1972 in which he freely confessed his many deceptions. One was to paint a cross on his forehead with a chemical that turned red from perspiration while he preached! "You don't get booked back unless you have a gimmick," Marjoe told *Newsweek* (July 31, 1972). He estimated that he had earned $3 million for his parents, who were part of the scam.

Coyne's gimmick is the nose peek. Now that he is nearing the end of his long and shabby career, and few congregations today accept him as genuine, he would do well to imitate Marjoe. A documentary explaining his method of seeing, and telling how he has hornswoggled good believers for four decades, ought to bring in much needed loot. My guess is he lacks the guts to make such a film, even though it would be a fine way to atone for his sins.

Coyne's act is an exception among eyeless-vision performers. Most of them are self-styled psychics who pretend they can read print with their fingers or toes, or see through their foreheads. In China in 1980 a group of "psychic" children read printed material after it was shoved into their ears or put under their armpits. For details on the history of eyeless vision by psychic charlatans, see my paper "Dermo-Optical Perception" (*Science*, February 11, 1966). It is reprinted with additions in *Science: Good, Bad and Bogus* (Prometheus Books, 1981). □

# Psychic Vibrations



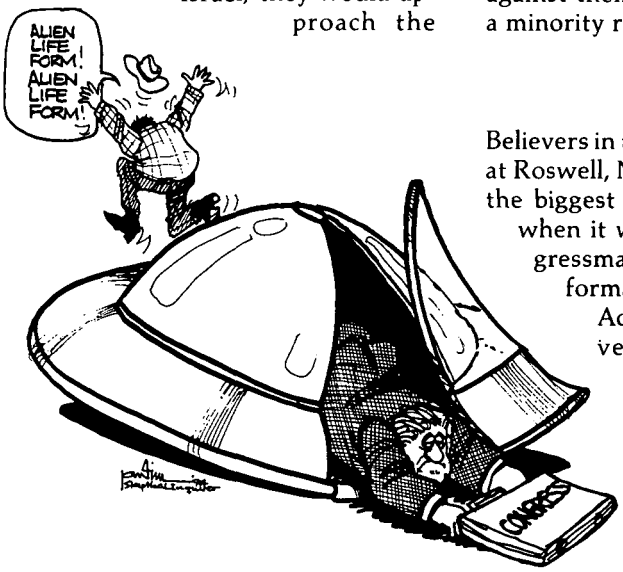
## *Unreal with Rael, Brazel's Real Find*

ROBERT SHEAFFER

Surely the most interesting of those claiming to have extraterrestrial friends is Claude Vorhilon, who says the space people told him to take the name "Rael." Once a journalist and race-car driver, Vorhilon claims he first encountered extraterrestrials at a remote location in France in 1973. Not long afterward, as "Rael," Vorhilon wrote *They Took Me to Their Planet.* In it he explained the message given to him to preach to humanity: The "Elohim" named in Genesis as our creators, a term that though plural is usually translated as "God," were in fact these same extraterrestrials. We did not evolve on earth: rather, this advanced race, using DNA, genetically engineered us in their own image. And we should do as the Elohim command. According to Rael, we earthlings are instructed to build them a proper embassy, in Jerusalem, so that they may openly return to earth, bringing with them all of the deceased prophets of the major religions. (He suggests how, in the interim, the Elohim might be contacted telepathically.)

Today the Raelian sect claims more than 27,000 members worldwide, with a disproportionately large number coming from French-speaking countries. The group is noted for its 1960s-style image of peace, long hair, and free love. Some of the principal teachings of the Elohim seem to center around the importance of sensual massage and "fulfillment," and Raelian publications are filled with images of smiling, healthy, naked young bodies. Recently they created something of a scandal in Montreal by sponsoring a conference titled "Yes to Masturbation," to which they brought some of the world's leading experts on the subject. The Raelian sect requires its adherents to pay as dues 3 percent of their after-tax income, a price that many of them apparently feel is worth paying.

Recently, the Raelian movement proclaimed that its leader, the "chosen one" of the Elohim, was in fact the Messiah expected by Jews. In November 1993, they sent a letter to Israeli Prime Minister Ytzhak Rabin on behalf of "Rael, the Messiah, whose mission is to rebuild the third temple near Jerusalem." In it they took credit for the Israeli-Palestinian peace accords, whose implementation, they noted, was scheduled for the twentieth anniversary of Rael's first extraterrestrial contact. Once again they reiterated their demand for an embassy in Jerusalem, for which they say 3.5 square kilometers are required. The Raelians cautioned that, if they did not get what they want from




Israel, they would approach the Egyptian government for a piece of land on Mt. Sinai. This would then transfer the protection of the Elohim from Israel to Egypt, resulting in the dissolution of the State of Israel, and a new Diaspora.

All this talk about Rael as the Messiah has greatly upset certain fundamentalist Christian groups. In their book *UFO 666*, David Allen Lewis and Robert Shreckhise argue that much of the UFO phenomenon can be attributed to demons, noting that the interval between Rael's first and second extraterrestrial contacts was exactly 666 days. As for Rael's account of the Creation, *UFO 666* charges that "Raelianism is blasphemy of the worst order," concluding that Rael is but one of "many Antichrists before the final one." Rael, however, charges that his group is being persecuted for being a "minority religion." With the Church of Scientology they have founded an International Federation of Philosophical and Religious Minorities, or "FIREPHIM," its French acronym, for the purpose of combatting alleged discrimination against them. "We are not a sect, but a minority religion," they proclaim.

* * *

Believers in the supposed "UFO crash" at Roswell, New Mexico, probably got the biggest excitement of their lives when it was announced that Congressman Steven Schiff (R-N.M.) formally requested the General Accounting Office, the investigative arm of the Congress, to look into the alleged coverup. (See News and Comment, Spring 1994.) Thus far, nothing has turned up, although the *Albuquerque Journal* (January 13, 1994) quoted an unnamed aide of Schiff complaining that the investigation was "getting stonewalled" by the Department of Defense. Schiff told the *Washington Post* (January 14, 1994): "Generally I'm a skeptic on UFOs and alien beings, but there are indications from the runaround that I got that whatever it was, it wasn't a balloon. Apparently, it's another government coverup."

Nonetheless, a more prosaic explanation for the event suggests itself from the text of an article from the *Roswell Daily Record* of July 9, 1947, which was among the papers released to the press by Schiff himself. That newspaper interviewed Mac Brazel, the rancher who discovered the alleged crash scene. Based upon Brazel's account the article describes

> a large area of bright wreckage made up of rubber strips, tinfoil, a rather tough paper and sticks. . . . The rubber was smoky gray in color and scattered over an area about 200 yards in diameter. . . . The tinfoil, paper, tape, and sticks made a bundle about three feet long and 7 or 8

inches thick, while the rubber made a bundle about 18 or 20 inches long and about 8 inches thick. In all, he estimated, the entire lot would have weighed maybe five pounds. There was no sign of any metal in the area which might have been used for an engine and no sign of any propellers of any kind, although at least one paper fin had been glued on to some of the tinfoil. There were no words to be found anywhere on the instrument, although there were letters on some of the parts. Considerable scotch tape and some tape with flowers printed upon it had been used in the construction. No strings or wires were to be found but there were some eyelets in the paper.

The state of extraterrestrial engineering must indeed be advanced far beyond ours to be capable of constructing its interstellar craft out of rubber, paper, tinfoil, and sticks. It is to be hoped that the opportunity has not been lost to learn something of extraterrestrial botany by studying the floral designs on the alien scotch tape.

In a possible related development, on January 13 members of the Computer UFO Network (CUFON) of Seattle, Washington, sent a press release to members of the Senate Armed Services Committee, which was holding confirmation hearings for Admiral Bobby Ray Inman to be Secretary of Defense. In the release they included some statements attributed to Inman in the writings of Timothy Good, a UFOlogist not known for avoiding bizarre and outrageous claims. According to Good, Admiral Inman claimed to have "some expertise" in the UFO field, including knowledge of the term "MJ-12," and he even believed that extraterrestrial beings were "behind the technology in the [UFO] crafts." A few days later, Admiral Inman withrew his acceptance of the nomination for Secretary of Defense. So perhaps the mainstream news organizations may have completely missed the mark in assessing reasons causing Inman to withdraw his name from nomination; perhaps he was *forced* to do so when it became clear that he could not be counted on to continue to keep the secrets of the sinister MJ-12 in its ongoing coverup of UFO-crash data. □

# 'Extraordinary Science' and the Strange Legacy of Nikola Tesla

JEFF JOHNSON

Each summer the International Tesla Society holds its Extraordinary Science Conference in Colorado Springs. The society honors the memory and work of Nikola Tesla (1856-1943), pioneer of electrical technology and world-class eccentric. One purpose of the society—and apparently the conference—is "to provide a forum for voicing new and untested ideas . . . for the education and enlightenment of the scientific community, students and the general public."[1] This was the first year I had attended.

*Half a century after his death, Tesla, a pioneer of electrical engineering and a world-class eccentric, has developed a cult following. The International Tesla Society's annual Extraordinary Science Conference—a forum for all misunderstood inventors and a bizarre showcase of untested ideas—is one manifestation.*

As a forum for untested ideas the conference is a roaring success: It is a magnet and showcase for some of the most delightfully untested—in a few cases untestable—notions currently vying for attention. As an added attraction, this conference included a much larger number of very old ideas—tested and discredited innumerable times and yet still hanging on.

Perhaps this is what is meant by the term *extraordinary science.* It is certainly distinguished from conventional, nonextraordinary science. In ordinary science, ideas gain stature as unsuccessful attempts to discredit them are made. But this is too tame for the extraordinary scientist, whose ideas retain, or even gain, stature despite *successful* challenges. In this perverse sense the canons of extraordinary science may be seen as much more stringent than those of ordinary common-or-garden-variety science. I'm perfectly willing to concede this is extraordinary.

Martin Gardner once observed that pseudoscientists tend to fall into two groups: those motivated to defend some religious dogma and

## Why Tesla?

It's easy to see why Tesla should have become the focus of an effusive subculture: He was absolutely convinced of his own genius; he promoted his own personality cult of the "great inventor" sort; he enjoyed financial success in early life, and later in life was able to indulge in a panoply of bizarre and grandiose ideas; and he achieved considerable scientific notoriety, despite a flawed understanding of physics and other sciences.

It was Thomas Edison who made inventing a corporate endeavor. Since Edison, successful inventors tend to work in research departments of large companies—technological development today is too expensive and too complex for any single person to understand it all. At least part of Tesla's reputation stems from the fact that he was the last of the great inventors to work alone. A mediocre artist may acquire an exaggerated reputation by dying just before the onset of a dark age, and something similar seems to have happened to Tesla's reputation among unsung geniuses today.

—*J.J.*

those motivated by a belief in their own greatness, unrecognized by the world, which in some cases can grow into paranoia.[2] The conference was made up almost entirely of this latter group, which we might call *egotistical* pseudoscience to distinguish it from religiously motivated pseudosciences like creationism. The conference is a focal point for a subculture of inventors whose genius has yet to result in fame or fortune and whose work is regarded by conventional scientists as trivial, dubious, or just plain loony.

There were two large presentation rooms. Positioned on the stage of one was a large high-voltage generator, obviously intended for use in some display of electrical pyrotechnics. Such exhibitions were a mania with Nikola Tesla, who loved to be photographed at lectures standing on one of his own high-voltage machines—called a Tesla coil—with streamers of electricity shooting from his fingertips. The society named after him puts on similar shows. I suspect this curious form of theater is now considered traditional and obligatory by regular conference attendees; certainly this odd mania for artificial lightning is what the casual visitor is most likely to remember.

Six tables in the hall outside displayed various wares. Some of these displays were by small companies, while others were staffed by individual inventors just itching to talk about their work. This conference had the air of an ordinary industrial fair, albeit a very small one.

One such display was the Quantum Electronics Corporation's Panda Air Purifier. This, it turns out, is an ozone generator. Ozone is produced when electricity discharges through air, which may be why this company thought the Extraodinary Science Conference would be an appropriate venue for its display. The device may contain a Tesla coil. Testimonials to the unit's efficacy were distributed.

In another corner a salesman was demonstrating something called the Lakhovsky Multi-Wave Oscillator,

*(continued on page 375)*

# Nikola Tesla: Genius, Visionary, and Eccentric

JEFF JOHNSON

In the past decade or so, Nikola Tesla (1856-1943) has become a name to conjure with—at least within the subculture of that American phenomenon: the Inventor. Few people today recognize his name, although in the history of electrical technology it is as important as Thomas Edison's. Even Tesla's admirers don't seem to know exactly what to make of him. The old saw about there being a thin line between genius and madness is a false dilemma: for some there is no line at all. Tesla was one such rugged individualist with a foot in each camp.

Tesla was born of Serbian parents in Croatia and was raised and educated there and in Austria and Hungary. From early childhood he displayed great precociousness in technological subjects: biographers credit him with devising waterwheels at the age of five. As a university student he excelled in electrical technology. About 1882 he conceived the ideas that would form the foundation for his only truly successful inventions: the induction motor and "polyphase" power transmission.

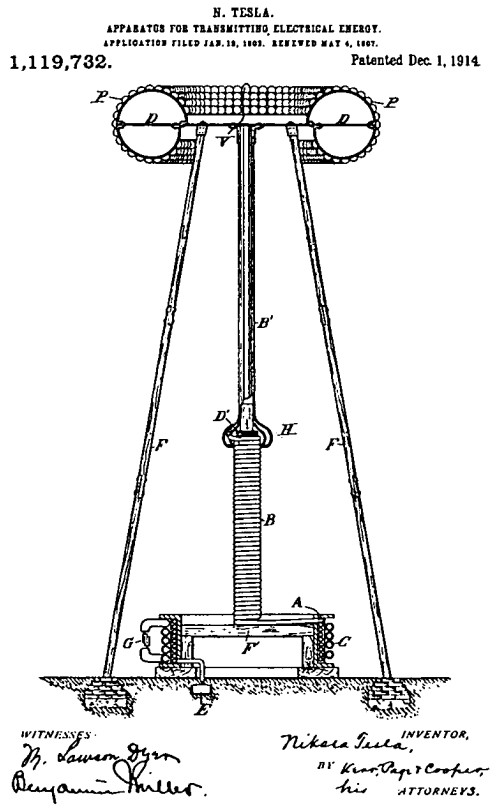
In 1884, while working in Paris for the Continental Edison Company, a French affiliate of Thomas Edison, he obtained a letter of introduction to Edison and immigrated to New York. He worked for Edison for about a year before having some kind of falling out. The standard story is that Edison told Tesla it would be worth $50,000 to him if he could improve Edison's electric generators significantly. Tesla did this and then asked Edison for his money. "Tesla," Edison replied, "you don't understand our American humor."

Tesla then caught the attention of George Westinghouse, inventor of the air brake, who was looking to break into electrical technology and thought Tesla's ideas on electric power distribution had merit. Electricity can be distributed in two general forms: *direct current* (DC) and *alternating current* (AC). Edison used DC exclusively and had a near monopoly on important electrical patents at the time. Tesla advocated the use of AC, which could be transmitted much greater distances and, just incidentally, offered a way to do an end-run around Edison's DC patents.

In 1891 Tesla and Westinghouse installed an AC motor and generator in the mining town of Telluride, Colorado, which got him, and the state, credit for the world's first practical commercial use of AC motors, genera-

tors, and transmission lines. The equipment was used to power mining machinery from a water turbine four miles distant. This installation, the Ames Power Station, is still extant and bears a marker honoring Tesla.

Westinghouse then won the contract to light the 1893 Columbian Exposition in Chicago using Tesla's "polyphase" AC system—essentially the same method of transmitting electricity we use today. This was the first world's fair at which electricity was exhibited extensively. In addition to providing all the power and light at the fair, Tesla gave lectures and demonstrated a number of his inventions, most notably a metal egg that he used to show that magnetic fields could be made to rotate. The egg would stand up and spin like a top on its narrow end when placed within the rotating field. This toy illustrated the principle of the induction motor—one of the few of Tesla's inventions that are ubiquitous today. About this time Tesla was also developing the high-voltage generator later known as the "Tesla coil" and using it to give spectacular electrical shows that, to people in the 1890s, must have been overwhelming.


N. TESLA.
APPARATUS FOR TRANSMITTING ELECTRICAL ENERGY.
APPLICATION FILED JAN. 18, 1902. RENEWED MAY 4, 1907.
1,119,732. Patented Dec. 1, 1914.
WITNESSES:
INVENTOR,
ATTORNEYS.

One of Tesla's patents for transmitting electrical power through the air.

In the next few years Tesla would supervise the installation of his polyphase system at the new Adams Power Station #1 at Niagara Falls. This was the world's first true commercial electric power station. (Today there is a statue of Tesla on Goat Island, which divides the American and Canadian cataracts.) It also represents the end of Tesla's truly productive period. He would continue to produce remarkable ideas for decades but would never again be able to finish what he started.

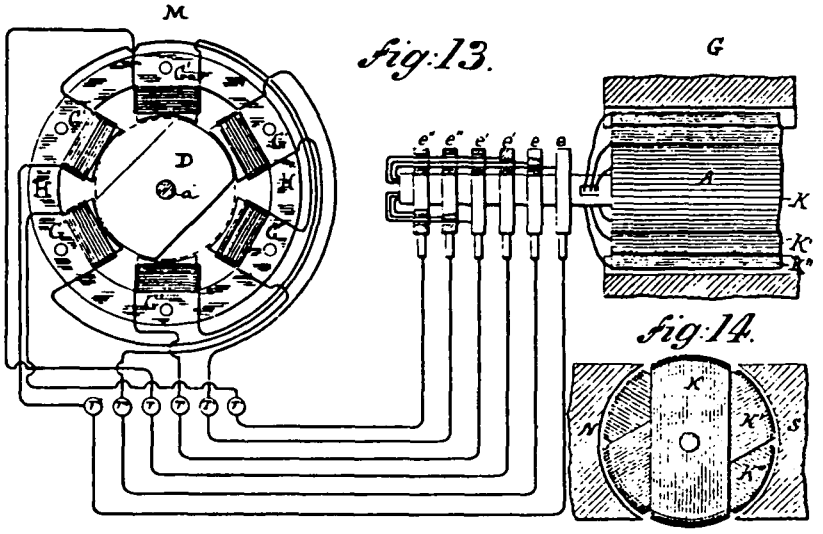
Tesla was now obsessed with the idea of transmitting electric power without wires. This is different from radio, the purpose of which is to transmit information—sounds, pictures, etc.—using very little energy. Tesla wanted to pump so much raw electrical energy into the atmosphere (or sometimes the earth, Tesla couldn't make up his mind) that people all over the world would be able to run appliances without plugging them in, and

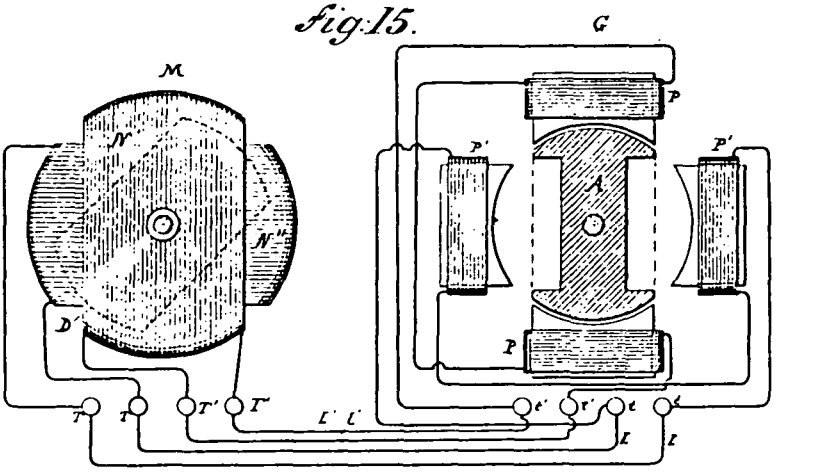
(No Model.) 4 Sheets—Sheet 3.

# N. TESLA.

## ELECTRO MAGNETIC MOTOR.

No. 381,968. Patented May 1, 1888.



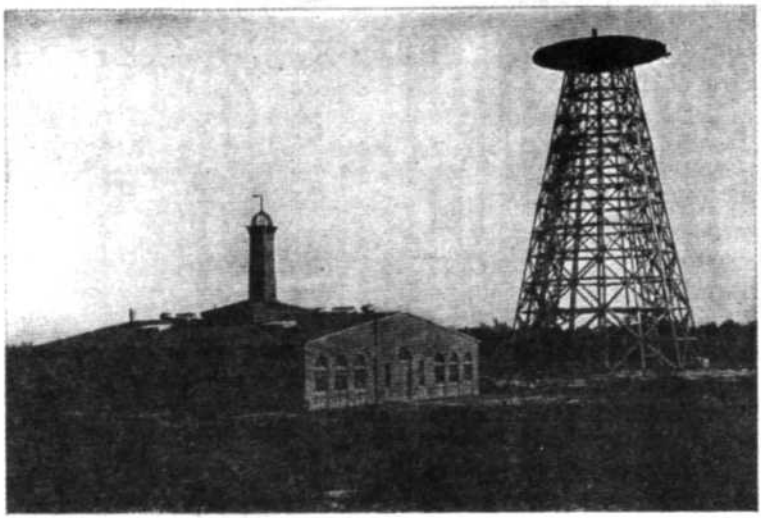




WITNESSES:
Frank E. Hartley.
Frank B. Murphy.

Fig:16.

INVENTOR.
Nikola Tesla.
BY
Duncan, Curtis & Page
ATTORNEYS.

One of Tesla's patents for the electromagnetic induction motor.

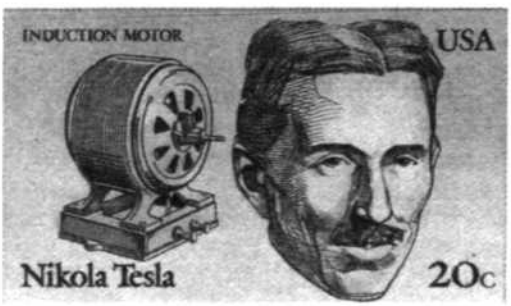


The Wardenclyffe Tower on Long Island, built 1901-1903, was intended for radio and wireless transmission of power across the Atlantic.

ships at sea wouldn't need to carry fuel. He also talked of making the upper atmosphere fluoresce—abolishing the dark of night forever. (One of the most ironic aspects of current Tesla-worship is that many admirers view with alarm the low-level electromagnetic fields produced by small appliances, while all maintain unbounded enthusiasm for his wireless-power ideas, which, if they were practicable, would produce fields millions of times stronger than anything in use today.)

To this end he began building larger and larger Tesla coils. In 1899-1900 he operated a laboratory in Colorado Springs that was essentially a house for a huge Tesla coil—54 feet in diameter. During one experiment, the purpose of which is still not entirely clear, Tesla's demands on the local electric utility became so great that the town's main generator was set on fire, blacking out the entire area. Tesla left shortly thereafter. (Residents don't hold any grudges and seem to regard the inventor that knocked out their power station rather fondly. Today the city is the home of the Nikola Tesla Museum of Science and Technology.)

His next big project, the Wardenclyffe Tower, on Long Island, in New York, was the last great enterprise of his life. Built in 1901-1903 it was 172 feet tall and was to have had a hemispherical metal dome when completed. It's usually described as looking




Tesla was honored for his invention of the induction motor in this 1983 postage stamp.

# Tesla's Inventions: A Critique

Tesla fans credit him with a long list of inventions and discoveries. These include radio, a bladeless steam turbine, fluorescent lighting, robotics, diathermy, the laser, vertical takeoff aircraft, pulsars, and much more. Ironically, these people seem least enthusiastic toward the one area in which historians of science and technology give Tesla unqualified credit: AC power technology. He is generally credited with two ubiquitous inventions: the induction motor and "polyphase" power transmission. All Tesla fans love his induction motor, but many fear the current that makes it go. Yet this is really the only area in which Tesla succeeded in developing a concept into a practical reality. (In his honor, the scientific unit of magnetic induction, or magnetic flux density, is named the "tesla.") In other areas Tesla's achievements are not so impressive.

A good example is radio. In the mid-1890s Tesla developed all the components needed to construct a practical radio system, but then seems to have lost interest—he never took his ideas beyond some very short-range demonstrations. This left the field to Guglielmo Marconi—whom Tesla despised—who would prove the feasibility of long-range wireless communication just a few years later. This leads to a Tesla Paradox: Although he anticipated Marconi and others in many ways, excellent histories of early radio need make only incidental mention of Tesla. (Two books that together make an excellent history of early radio technology are *Syntony and Spark* and *The Continuous Wave*, both by Hugh G. J. Aitken.) This paradox recurs throughout Tesla's life.

His bladeless turbine may have been conceptually sound, but difficult and expensive to manufacture, and it may have had technical characteristics that limited its appeal. Tesla fans are inclined to resent this.

Other claims are even more dubious: Tesla fans broaden the definition of *invention* until it loses all meaning. Tesla found that gas-filled glass tubes glowed in the presence of his high-voltage

like a giant mushroom or salt shaker. Tesla obtained funds to build it by signing control of his patents over to financier J. P. Morgan, apparently on the understanding the tower would be part of a worldwide radio system. But Tesla was still thinking of wireless power. To electrical engineers the form of Tesla's tower doesn't seem to lend itself to being a radio antenna (by this time radio pioneers were using much simpler, cheaper antennas). It is, however, immediately comprehensible as an enormous Tesla coil—far larger than the monster at Colorado Springs. It was never completed and was pulled down in 1917.

Although a millionaire in the 1890s, Tesla had so indulged his appetite for expensive experiments that from the early 1920s until his death in 1943 he was nearly destitute. By the turn of the century, at the height of his reputation, Tesla had cultivated

apparatus, but modern neon and fluorescent lighting don't work this way and were developed by others. The claim that Tesla is the father of robotics stems from a story of a demonstration he performed in 1898 in which he steered a model boat in a water tank by remote control. He speculated that electricity had curative powers and built Tesla coils for this purpose—therefore it is claimed that he invented diathermy. He rambled about death rays—hence, he "invented" the laser. Little more than a sketch from the 1920s of a very peculiar biplane on casters makes Tesla the "inventor" of vertical take-off and landing (VTOL) aircraft. All this may be remarkably prescient, but by similar reasoning Leonardo da Vinci invented the helicopter and Hero of Alexandria (first century) invented the steam locomotive.

About 1900 Tesla was playing with a radio receiver when he picked up a series of regular pulses. He instantly concluded he had made contact with Martians—an announcement that got him considerable ridicule. Tesla's modern admirers, perhaps a bit embarrassed for their hero, are equally sure he had tuned in on a pulsar—60 years before radio astronomers did. Considering what radio technology was in 1900 this may not be the true explanation.

Tesla's "death ray" is something of a mystery. Some (not all) admirers insist it was actually built and used to shoot down a plane. Descriptions vary: sometimes it is a particle beam of some sort. My favorite is that it was "a kind of radio-wave-scalar weapon or what might be called an ultra-sound gun" (*The Fantastic Inventions of Nikola Tesla*, by D. H. Childress, 1993).

The most intriguing of Tesla's inventions are the ones that got away. Visitors to the Tesla Museum in Colorado Springs are told a story reminiscent of UFO conspiracy tales: In a raid on his house immediately after his death, government agents seized all of Tesla's apparatus—some 85 trunks full—either because timid bureaucrats felt the world wasn't ready for the wonders of Tesla technology or for more sinister reasons. Exactly what all this top-secret Tesla technology may be isn't known, but some of it, so goes the story, may make time travel possible.

—*J.J.*

friendships with such Gilded Age luminaries as architect Stanford White and author Samuel Clemens, who once had his picture taken in one of Tesla's laboratories—having allowed himself to be suitably electrified. But as the twentieth century wore on, Tesla's coterie of admirers slowly shrank as his public pronouncements on scientific subjects became more and more bizarre. During World War II he made occasional newspaper copy by talking of building "death rays" and photographing thoughts on film. But by this time he was almost forgotten.

Tesla was also a lifelong defender of the physics of Sir Isaac Newton against the innovations of the upstart Albert Einstein.

Like Howard Hughes, Tesla had a lifelong terror of germs, and this phobia grew steadily worse as he aged. He washed continually—at

# Just What Is a Tesla Coil Anyway?

Tesla coils and books about them are ubiquitous at Tesla exhibitions. These coils are specialized electrical transformers and spark gaps in circuits that produce high voltages at high frequencies. Often the coil has a large metal ball on top from which streamers of electricity shoot.

Large Tesla coils can produce millions of volts and are used to make spectacular electrical displays—but that's about all. The Tesla coil has never been much more than a toy: excellent for a wide variety of adolescent mayhem but having no important scientific or industrial applications. This device, which obsessed Tesla for the last half of his life, is now only a curiosity.

Tesla's admirers try to get around this embarrassing fact by claiming that Tesla coils are to be found in many places today: cars and television sets are favorite examples. Presumably, they are thinking of ignition coils and flyback transformers, neither of which is a Tesla coil. These things are much more sophisticated devices whose only similarity to a Tesla coil is that they all produce high voltages. Some Tesla fans go even further and imply that all transformers are Tesla coils. This is nonsense: Tesla did *not* invent the transformer.

True Tesla coils are not used in scientific experiments today because they are too quirky: their voltages and frequencies vary from many causes and they require constant adjustment. They are also very "dirty" electrically: They produce intense radio and TV interference. Today's scientists and engineers have far superior methods of producing high voltages—methods that do not derive from Tesla's work.

*J.J.*

hotels he would demand the maids stock his room with 18 fresh towels a day. No matter how desperately in need of money, he was always impeccably dressed. He had many morbid fears: he was disturbed by round objects, particularly pearls in women's jewelry. He preferred to dine alone because he couldn't bear to eat without first counting the items on his plate, and the habit embarrassed him. (He preferred things to come in multiples of three.) His last years were spent in cheap hotels in which he devoted his time and meager resources to feeding pigeons—his only companions—that came to his windowsill.

There are three book-length biographies of Tesla: *Prodigal Genius*, by John J. O'Neill; *Tesla: Man Out of Time*, by Margaret Cheney; and *Lightning in His Hand*, by Inez Hunt and Wanetta W. Draper. These provide some insight but are more properly classified as hagiography. This may not be entirely the fault of the authors: Tesla encouraged his own personality cult, partly from vanity, partly as camouflage. The data needed for a truly satisfactory portrait may simply not exist (or it may be stored in Belgrade). However, although these authors have varying degrees of difficulty in distinguishing science from nonscience, Tesla has yet to find a biographer immune to his crankiness. □

(Continued from page 367)

also called a "Violet Ray Device." This is a modern version of a "device for electrical healing," originally manufactured in the 1920s. It is built into an attaché case, which contains a Tesla coil to produce high-frequency high voltage. This is carried by a heavily insulated wire to a wand with a glass bulb at its tip. The bulb is filled with one or another inert gas that produces an eerie violet glow when the power is turned on. When this wand is touched to human skin, a mild electric tingle is felt. (The voltage produced by small Tesla coils is very high but the current is so slight that there is no danger—so long as everything is working properly.) Massaging an afflicted area of the body with this wand is claimed to have therapeutic effects.

One elderly woman—she may have been a little deaf—was so enthralled by the tingly wand that she kept it pressed to her ear for several minutes. (The salesman finally had to tell her it was best not to overdo.) She then asked if it was good for sore feet. The answer was yes, and before anyone knew what was happening she had kicked off her shoes, pulled up a chair, and was inviting the salesman to apply the glowing gadget to her feet. Chivalrously, he complied. (The glow is incidental: healing effects are "not attributable to the glow.")

While all this was going on, the salesman told us a bit more about the device. It seems that regulatory agencies like the FDA don't think much of it and get very upset when claims are made for it. Therefore, the salesman explained—very candidly, I thought—to keep the government happy they have "elected not to make testable claims." They are not, however, averse to distributing testimonials from chiropractors who use the device. Also, he continued, there seems to be a curious anticorrelation between the seriousness of a medical condition and the unit's efficacy: It's not at all helpful for heart attack or trauma from being run over by a car, but for arthritis and rheumatism it "may give what we call *positive experimental results.*" Someone asked if it was good for your aura. Answer, "Oh, it's great for your aura!" This contraption is straight out of the era when mail-order catalogs listed "electric belts" for men (for impotence, and almost anything else) and "magnetic corsets" (for "female complaints").

A banquet room had been pressed into service as a bookstore. Titles spanned the entire range of the egotistical pseudosciences: admiring works on everything from quack medicine to UFO propulsion. One interesting series of books comprised paperback reprints of legitimate science-and-technology "how to" books dating from the 1800s. Considerable space was devoted to books on Tesla and his inventions. Perhaps the largest single section consisted of books on how to build Tesla coils. There were also Tesla T-shirts, coffee cups, and other items for sale. Although usually immune to such kitsch, I couldn't resist a Tesla beer mug along with my arm-load of books.

The lecture/workshop schedule was dominated by talks on recent attempts at perpetual motion. Conventional (nonextraordinary) scientists hold to a principle called the law of *conservation of energy.* This law implies that it is impossible to build a machine that continuously produces more energy than it consumes—in nontechnical terms, there's no such thing as a free lunch. Extraordinary scientists never stop looking for this free lunch: A working perpetual-motion machine would make its

inventor the richest person in history, although most of these people don't stress this, preferring to style themselves as benefactors of humanity.

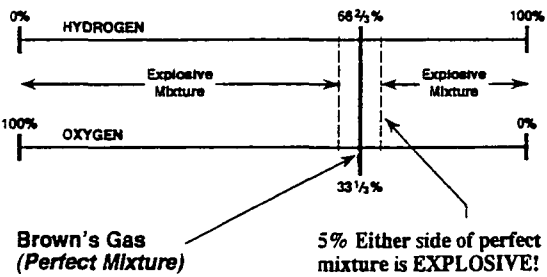
Researchers in this field have come to resent the invidious connotations the term *perpetual motion* has acquired and are looking for less derogatory phrases to describe their work. Currently, the two most popular candidates are *free energy* and *over-unity*. The former seems to refer to machines that extract energy from sources not discernible to conventional physicists, while the latter is applied to machines whose efficiency is greater than one: that is, they produce more useful energy than they consume. Exactly how one could build an "over-unity motor" and not achieve perpetual motion has never been adequately explained.

The scope of the conference, as reflected in its literature,[3] was in itself rather extraordinary.

First, there was "The Incredible World of Gaston Naessens." Naessens claims a number of discoveries. One is "The Somatid, an ultramicroscopic subcellular living and reproducing entity which many scientists believe is the precursor of the DNA [*sic*] and which may be the building block of all terrestrial life." He is also the inventor of a new kind of microscope, with "resolution far greater than current state-of-the-art microscopes"—and presumably just the thing for seeing somatids. On a more disturbing note, consider his formula 714-X: "a compound that has restored to perfect health 750 out of 1,000 cancer victims and has equally dramatic results with AIDS patients." That Naessens has had to face some skepticism in his life is strongly implied by a title the conference bookstore was offering: *The Persecution and Trial of Gaston Naessens*, by Chris Bird.

Next up: Brown's Gas . . . A Technological Breakthrough," by Yull Brown, and "Innovations Using Brown's Gas," by Gary Hawkins. When conventional scientists run electricity through water, the molecules break down into their constituents: hydrogen and oxygen. When Brown does the same thing in his apparatus, he gets something called Brown's Gas: "It has been the popular practice of other investigators of the Brown gas-generator to ascribe to the gas properties of molecular hydrogen and oxygen gasses in proportion of 2:1. Although this assumption is very plausible, it is also very incorrect." Well, that sounds clear enough—until you look at the accompanying figure,[4] which seems to imply that that is exactly what Brown's Gas *is*. It also suggests that mixtures of hydrogen and oxygen are explosive in any ratio. Conventional chemists will be crushed to learn they don't understand the behavior of hydrogen/oxygen mixtures. So just what is Brown's Gas? The conference brochure is a trifle contradictory. It does, however, assure us that it's going to cause a "21st Century Industrial Revolution."

Now, on to perpetual motion and "The Energy Conserver Method," by George Wiseman: "Heat, light and magnetism are side effects of electron flow and do not actually consume elec-




Brown's Gas was billed—for unclear reasons—as a technological breakthrough.

trons." Wiseman has the strange idea that conventional physicists and engineers think electrons are "consumed" or "thrown away" in electric circuits. He has developed methods of designing electrical devices that do not suffer from the unnecessary limitations introduced by this false worldview: "The Energy Conserver allows electron flow but saves those electrons, without losing voltage, so that the electrons can go through the circuit again and again." Remarkable. "This is not *perpetual motion* . . . [but our] circuits could be called *over-unity* when viewed by conventional dogma." (Italics in the original.)

"The Magnetic Battery," by Bert Werjefelt: "Finally . . . an acceptable explanation of apparent violations of the Conservation of Energy Laws emerges!!!" To a nonextraordinary engineer, this "magnetic battery" looks an awful lot like a motor, which turns a generator, which charges a battery, which runs the motor, which turns the generator."[5] Presumably, the battery is there only to get the thing started, but I am plagued with doubts.

"PODMOD . . . The Phoenix Project," by Richard L. "Scott" McKee: "Claims have been made that this device only needs a modest input from a 12V battery to generate up to 4000 times as much power for output!" Hmmmmmm. . . .

"The Energy Machine," by Joseph W. Newman, was probably the high point of the conference. Newman is the most famous of the current crop of perpetual motionists—a label he won't appreciate—having demonstrated his machine to Johnny Carson on "The Tonight Show" and in scientific forums. Physicists currently speculating about superstrings may be more interested in his Unified Theory of All Physical Phenomena, which he developed to explain the behavior of his energy machine. Newman is also a "tragic genius" in the classic Tesla mold, having spent 14 years fighting unsuccessfully for patent recognition. He did, at one point, get the National Bureau of Standards to examine his machine, but the test results were disappointing. To add insult to injury the NBS explained this failure in terms of conventional electromagnetic theory (*SI*, 11:114, Winter 1986-87). Newman is also something of a visionary and philosopher: "Well above and beyond the theory and energy machine, Mr. Newman will continue to promulgate the eternal message of love, truth, and justice for all."[6]

In addition to Newman's Grand Unified Theory, there were several other brands of extraordinary physics in the conference literature: "Zero-Point Energy," "Absolute Electrostatics," "Point Energy Creation Physics," and the "Scalar Magnetic Field." (This last is the basis for frightening new "death rays" that were secretly developed by the Soviet Union.) I'm not sure I didn't miss a few others. All are in conflict with conventional physics, but whether they conflict with each other isn't clear. Extraordinary Scientists seem to get along with each other very well—perhaps because they are too polite to check one another's arithmetic.

Although not nearly so popular as perpetual motion, references to "reactionless space drives" are also common in conference literature. The same people who seem to regard the law of conservation of energy as a violation of their civil rights are equally incensed at Sir Isaac Newton's idea that the only way to get pushed is to push on something else. This law is extremely inconvenient in rocketry because in space there isn't anything to push against. Rockets can get their push only by forcibly expelling materials called propellants. When a rocket's

propellant runs out, so does its ability to change speed and direction—it can only drift. Propellants are also heavy, bulky, and expensive, which places severe restrictions on range and performance. Extraordinary researchers are therefore making extraordinary efforts to find an alternative. Similarly, modern ideas about gravity are treated with the contempt they deserve by those working on antigravity machines—yet another eternal quest for the free lunch.

There was much more. As an adjunct to all the Extraordinary Science going on there was also a session on Extraordinary Financing (their term, not mine): "Gold!!! Everything you ever wanted to know. . . ." by William Cody, a "true descendant of 'Buffalo Bill.' " Perhaps this may give readers without much technical background a better taste for the "anything goes" spirit of the conference than my other examples: for if it strikes you as odd to hear panning for gold being called "finance"—I got the same bemused feeling from hearing these other things being called "science."

As I looked about at the people attending and exhibiting, everyone seemed happy enough, flitting uncritically from one dubious wonder to the next. But I couldn't help wondering about their possible futures, if anyone there would wind up emulating Tesla's tragic later years. In middle age he pursued projects that were dubious at the time and are now regarded as scientific and technological dead ends. Before the turn of the century Tesla had made real achievements, but he spent his last decades destitute and forgotten.

In providing a forum for these people, the conference may serve a valuable function—although not the one its organizers have in mind. The thought that the ideas promoted will set the scientific world on fire we may safely dismiss; but the conference may disperse a little envy. It offers participants 15 minutes of fame in front of a sympathetic audience. For that moment their achievements are real and they are accorded the respect they may feel they deserve. They chat with others who have had to endure obscurity and ridicule and they go away refreshed—perhaps feeling it is really the world's fault, not theirs, that they aren't rich and famous.

The influence of ideas promoted at the conference is likely to be self-limiting, just as the unconscious self-satire at which their proponents are so adept may limit their own influence. For anyone interested in the sociology of the pseudosciences the conference is a real education.

## *Notes*

1. Program for the 1993 Extraordinary Science Conference, p. 2, published by the International Tesla Society, P.O. Box 5636, Colorado Springs, CO 80931. The quotation is from a box listing the "Goals and Objectives" of the society.

2. Martin Gardner, *Fads and Fallacies in the Name of Science*, Dover, 1957, pp. 11-14.

3. All uncredited quotations are from the conference program, pp. 6-9. (See note 1.)

4. This figure was redrawn by the author from one shown in the conference program.

5. Bert Werjefelt. "The Magnetic Battery," *Extraordinary Science*, 5, no. 2. (April/May/June 1993): 23-32. This is the official publication of the International Tesla Society, and this issue is largely devoted to the Extraordinary Science Conference.

6. Conference program, p. 12. (See note 1.)

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# Pollens on the 'Shroud': A Study in Deception

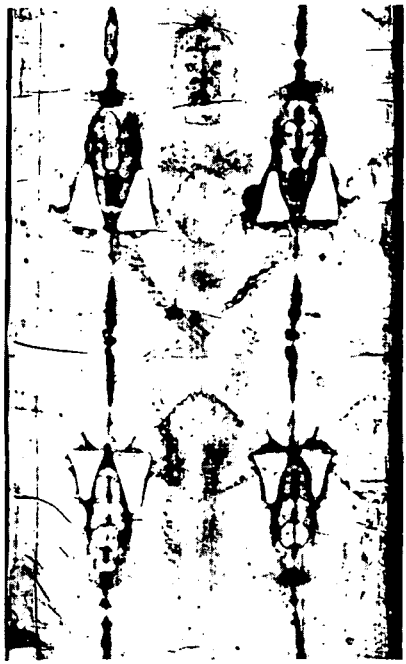
JOE NICKELL

Despite its exposure as an artistic forgery, the Shroud of Turin (which bears the front and back images of an apparently crucified man) is still promoted as the burial cloth of Jesus by a small, but vocal, group of religious enthusiasts, including a few scientists. They continue to cite the "presence of Palestinian pollen grains on the Holy Shroud" (De Vincenzo 1993) as a major counterargument to the carbon-14 test results, which indicated the cloth was of medieval manufacture (Damon et al. 1989; Nickell 1989, 1991). Unfortunately, it now appears that the pollen study was an exercise in deception—self-deception, at best, if not outright scientific fraud.

*The Shroud of Turin has been shown to be an artistic forgery, but a small group of enthusiasts still cite the supposed presence of Palestinian pollen as a major counter-argument. It now appears that the pollen study was an exercise either in self-deception or outright scientific fraud.*

The analysis was conducted by a Swiss criminologist named Max Frei-Sulzer (1913-1983). Frei once taught an evening course in microscopical techniques in the Zurich University extension system; subsequently he was asked to create a crime laboratory for the local police, which he began in 1950 (Palenik 1982). In 1973, as a consultant to a shroud commission Frei was granted permission to take samples from the cloth. This involved pressing small strips of sticky tape onto the cloth's surface, then peeling them off—coated with surface debris—and sticking them on microscope slides.

During the next two years, between jobs as a freelance criminologist, Frei microscopically examined his tapes and in March 1976 issued a report, claiming he had found certain pollens that "could only have originated from plants that grew exclusively in Palestine at the time of Christ." Frei was also quoted as asserting: "I can state with certainty that the Turin shroud dates from the time of Christ." (Humber 1978: 196; Wilcox 1977:167). Apparently, however, he



The half of the Shroud of Turin containing the frontal image.

was either "misquoted" or withdrew this rash statement, because shroud researcher Ian Wilson (1979:80) soon insisted, "Frei makes no such claims," describing him as a "cautious individual."

Subsequently, Frei had also claimed, according to wire-service reports, that "he found traces of ointment made from a type of aloe that grows only on the island of Socotra, off the coast of South Yemen. Ancient texts refer to the ointment as having been applied to corpses before burial, Frei said." These alleged findings—consistent with the reference to aloes in the Gospel of John (19:39)—were presented to the Archbishop of Turin just in time to make 1981 Easter news (Dart 1981).

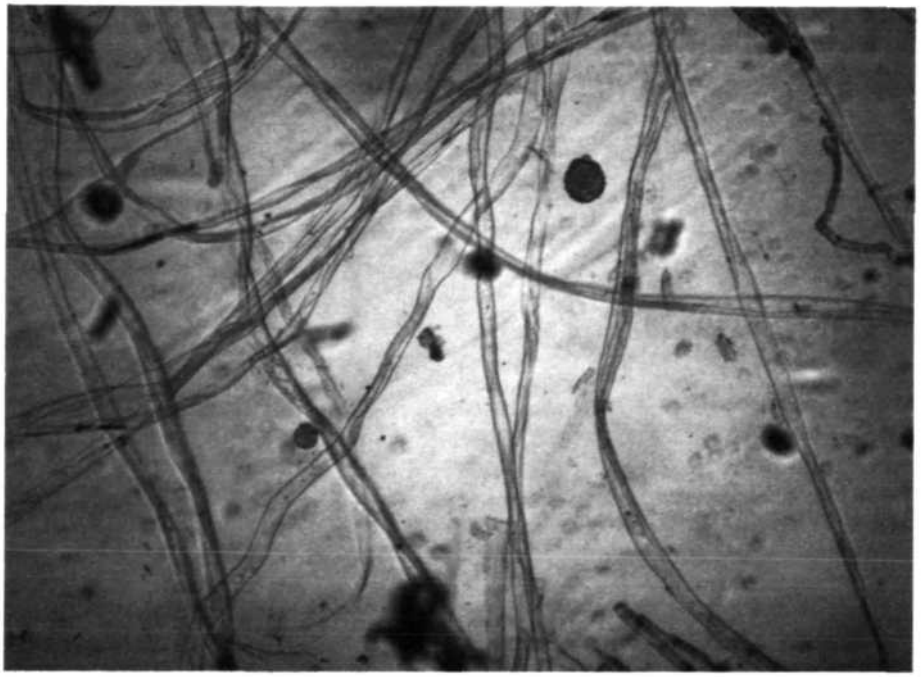
Earlier, Frei had also claimed to have found pollens on the shroud that were characteristic of two other non-European regions, including Istanbul (formerly Constantinople) and the area of the Anatolian steppe that includes Urfa (Edessa, in ancient times)—both in Turkey (Frei-Sulzer 1979). He reportedly traveled through the Near East and Turkey "in different floral seasons" in order to obtain pollen specimens to compare with those on the shroud (Frei-Sulzer 1982). The discovery of these additional pollens seemed strikingly to confirm a "theory" of the shroud's history advanced by Ian Wilson. This is an important issue for shroud advocates since the cloth lacks any provenance before the 1350s.

Wilson's conjectural history of the shroud begins with the notion that it was the ancient Image of Edessa, also known as the Mandylion. According to a fourth-century legend, Jesus miraculously imprinted his face on a cloth as a gift to Edessan King Abgar, in "consolation" for his affliction with leprosy. The Mandylion remained in Edessa until 943, when it was seized by the Byzantines and installed at Constantinople. From there, this theory holds, it was eventually taken to France by crusaders (Wilson 1979: 126-191).

However, not only is the story of Abgar and Jesus demonstrably apocryphal, but the Mandylion bore only a facial portrait, not the twofold imprint of a crucified man. It is therefore not surprising that historians are quick to dismiss Wilson's scenario (Nickell 1987: 41-48).

Nevertheless, Frei's pollen evidence gave Wilson's ideas new credibility. In return, Wilson devoted a chapter to Frei in his book and gave an extended list of 49 "Plant Species of Pollen Samples from the Shroud (*as identified by Dr. Max Frei*)" in an appendix (Wilson 1979: 77-81, 293-298). (Later Frei [1982] claimed to have identified at least 56 different pollen types.)

Still, Wilson did concede "that Frei



Photomicrograph of slide 6-B/d from the Max Frei collection. While this detail shows two or three of the many pollen grains found on that tape (which contains much more pollen than all of the other 25 tapes combined), they are from the lead end where Frei's gloves left the myriad of cotton fibers shown crisscrossing the area. Clean gloves should have left no pollens in this area. McCrone labels this—and a suspicious smear of several hundred pollens on the body of the same tape—"contamination." (Photomicrograph courtesy of Paul C. Maloney, ASSIST)

was using palynology, the science of pollen analysis, in a particularly unusual way." As he explained: "Normally a core is taken from some sedimentary deposit, and by simple analysis of the pollens at different levels, a picture can be built up of changes of flora in one region over a given period." He continued: "By contrast Frei was trying to use the method to determine through which geographical regions one given object, the shroud, had moved, the significant clues being the identification on the object of pollen from plants of specifically limited geographical distribution." Wilson elaborated: "One of the complications of the method is that many plants are common to virtually all areas in which the Shroud might have been kept in the course of its history. Another complication is that plants that originally had one specific regional derivation are today found all over the globe" (Wilson 1979: 79-80).

Related criticisms came from various quarters. Some faulted Frei's work for apparently failing to use control samples. Another problem was the possibility of contamination. According to an article in *Science 81*, even Shroud of Turin Research Project (STURP) scientists "say the pollens might have been carried by the wind or deposited by the shroud's visitors; its presence does not prove that the shroud was ever in the Holy Land" (Burden 1981).

However, Smithsonian botanist Richard H. Eyde (1986) observed that

the real problem with Frei's work was that he claimed to do that which was suspect. Eyde noted that pollen identification "is not to species save in rare cases; rather it is to this or that 'type' of [pollen] grain—or to genus or species-group." He added: "This is so well known, that the burden of proof is on the one who says he's identified a species by its pollen. The identifier must say what traits separate the identified grain from grains of related plants."

Other problems with Frei's credibility were forthcoming. Before his death in 1983, his reputation suffered a severe blow when, representing himself as a handwriting expert, he pronounced as genuine the notorious "Hitler diaries," which were soon exposed as third-rate forgeries (Browning 1983).

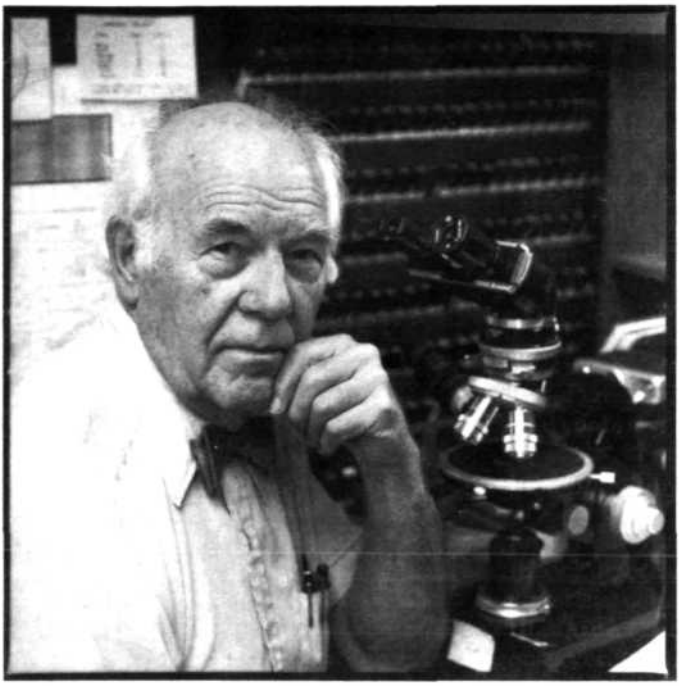
In the meantime, an even more serious question had arisen about his pollen evidence—not just about its interpretation, but concerning its very existence. Frei's alleged findings were at variance with those of STURP, whose members had taken their own sticky-tape samples from the shroud in 1978 (at which time Frei took a second set of samples). Now, it is not true—as shroud enthusiast Daniel C. Scavone (1989: 44-46) reports (with characteristic inaccuracy)—that "the STURP scientists were shocked when they examined the tapes for pollens and not one pollen was found on any of them." However, STURP did report that "very few pollen were observed on the tape samples in the present project" (Schwalbe and Rogers 1982).

Probably the first person to publicly suggest Frei might be guilty of deception was shroud critic Steven D. Schafersman, a professional micropaleontologist. He, Walter McCrone, and I each gave presentations on the shroud at an international microscopy conference held in Chicago in 1982. McCrone (1980; 1981) is the noted microanalyst who discovered paint pigments—notably red ochre—on the shroud image.

Schafersman (1982a) subsequently elaborated on his views, terming Frei's pollen data "incredible" and casting suspicion on how the data "supports in exquisite detail a highly speculative history of the 'shroud's' journey that no reputable historian or scientist endorses because there is no independent evidence for it." Schafersman pointedly observed that at the International Congress on the Turin Shroud in 1978, Frei publicly endorsed Wilson's shroud/Mandylion theory.

Schafersman went on to explain how unlikely it was, given the evidence of the shroud's exclusively European history, that 33 Middle Eastern pollens could have reached the cloth, particularly only pollen from Palestine, Istanbul, and the Anatolian steppe. With such selectivity, Schafersman stated, "these would be miraculous winds indeed." In an article in the SKEPTICAL INQUIRER, Schafersman (1982b) called for an investigation of Frei's work, for comparison not only with STURP's tapes but with "duplicate and independent sticky-tape samples of pollen and dust" that Schafersman wished to be taken from the shroud.

Although new samples were not taken, after Frei's death another organization, the Association of Scientists and Scholars International for the Shroud of Turin (ASSIST), obtained Frei's tape samples. His widow, Gertrude Frei-Sulzer, first loaned five tapes to ASSIST. I was present when these were made available for microscopical viewing in mid-February 1986 at a shroud conference at Elizabethtown College, Elizabethtown, Pennsylvania; McCrone was the first to examine one of the tapes and soon announced: "There's a



Walter McCrone, regarded by many as the world's leading micro-analyst, discovered paint pigments on the Shroud of Turin and subsequently examined pollen specimens allegedly removed from the same linen cloth. His motto is "Think small." (Photo by Joseph Barabe, copyright McCrone Scientific Photography)

pollen" (Maloney 1989).

Two years later, ASSIST acquired Frei's collection of tapes from his widow and son and invited two scientists—McCrone and STURP's Alan Adler—to verify that the samples were taken from the Shroud of Turin. With the proceedings being videotaped, as each slide was handed to McCrone he observed it under the light microscope while simultaneously shroud researchers observed the microscope's field on video monitors. McCrone described linen fibers (including scorched fibers) and various contaminants, including synthetic fibers, particles of iron oxide (red ochre), and a few pollens.

Termed "one of the most surprising revelations of the day" was the discovery of "various kinds of plant parts and floral debris, such as anthers, filaments, and vascular tissue on at least three of the tapes." This was held to support a hypothesis that "actual flowers had been laid down on the Shroud at some time during its history," which in turn "would explain the high percentage of floral pollens on the Shroud as described by Dr. Frei" (Flaherty 1989).

Interestingly, ASSIST's Paul Maloney (1994) reports that the pollens "are mostly located in what I call the 'lead' (as opposed to the 'body') of the tapes," supposedly attributable to Frei's method of handling the tape, by which he picked up additional pollens from between the threads. On the other hand, McCrone (who did not examine the leads during his marathon inspection) is suspicious of the

excessive pollens reported in those unlikely areas, stating that, at best, they would represent "contamination" of some sort (McCrone 1994).

Indeed, McCrone's overall assessment of the pollens is at variance with that of ASSIST. When I headed the symposium on forgery at the Manuscript Society's 1993 meeting in Santa Fe, I invited him to give a presentation. The evening before, we had a lengthy discussion, during which the distinguished microanalyst confided to me his opinion of Frei's pollen evidence. This he did with some obvious pain, explaining that "Max" had been a friend of his. At my prodding, in two subsequent letters he elaborated in some detail on his observations.

Explaining that he "spent a long day examining the 26 Frei tapes in order to be able to say that they had definitely come from the Turin shroud," McCrone stated: "It was not too difficult to conclude that they had since it was easy to find red ochre on linen fibers much the same as I had seen them on my samples." He continued (1993a):

> At the same time I was interested to note that there were very few pollen grains; perhaps one per square cm, which was pretty much what I had observed on my set of tapes. Incidentally I had talked to Max Frei at one of our London Microscopy meetings a year or two earlier and had asked him what the concentration of pollen was, and he did say about one per square cm. Considering that figure and the number of tapes and their length there could not have been much more than 100 pollen grains all total on his or my tapes. It is difficult to see how he could have found an assemblage of pollens representing 49 different species of Palestinian pollens on a piece of cloth that has spent the last 650 years of its life openly exhibited and much handled in France and Italy. I'm afraid that Max Frei was like so many other members of the STURP group who were so convinced by their faith the Shroud was real that they were just as convinced that whatever was needed on the Shroud to prove that fact must be there, and if they didn't literally find it they regarded this as their error rather than a reality in terms of what the Shroud actually shows.

McCrone added (1993b):

> I have looked back over my notes and see that I mentioned, marginally, the presence of very few pollens. Only 10 plus or minus on all of the tapes other than 6 Bd which has dozens of them. I also noted that those on 6 Bd were located within 2-3 square millimeters of the tape. At the time I remember saying diplomatically that they were "contamination." I didn't in fact, identify those pollen, so I don't know whether they are Palestinian or Italian. It is very doubtful that they were present on the Shroud itself and sampled by Max. The fact that they are then present indicates that the tape had to be pulled back so that they could be introduced and I see no good reason for that except skullduggery. A skilled skulldugger would, of course, pick off all but one or two of those contaminating pollen grains.
>
> So I can't be sure that Max really adulterated the tapes from that bit of evidence, but the fact that most of the pollen he found supposedly came from the Palestinian area even though it had spent the last 600 years or so bouncing around in France and Italy is more than a little surprising.

Finally, he added this bombshell:

> One further point with respect to Max which I haven't mentioned

anywhere, anytime to anybody is based on a statement made by his counterpart in Basel as head of the Police Crime Laboratory there that Max had been several times found guilty and was censured by the Police hierarchy in Switzerland for, shall we say overenthusiastic interpretation of his evidence. His Basel counterpart had been on the investigating committee and expressed surprise in a letter to me that Max was able to continue in his position as Head of the Police Crime Lab in Zurich.

The implications of McCrone's revelations are devastating to authenticity advocates—or should be. However, experience shows they are never dissuaded by negative evidence.

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# Do Televised Depictions of Paranormal Events Influence Viewers' Beliefs?

GLENN G. SPARKS, TRICIA HANSEN, and RANI SHAH

Over the past 15 years, scholars from various disciplines have shown increasing interest in the study of paranormal beliefs. The term *paranormal* is reserved for claims made about the existence of a wide range of extraordinary phenomena that includes such things as ESP (extrasensory perception), haunted houses, ghosts, devils, spirits, reincarnation, telekinesis (the ability of the mind to move or bend objects), UFOs (unidentified flying objects), astrology, and astral projection (one's spirit leaving the body, traveling some distance, and then returning). In a recent national survey of 1,236 adults, Gallup and Newport (1991) found that paranormal beliefs were "widespread," with nearly 50 percent of the respondents reporting belief in ESP and almost 30 percent reporting belief in haunted houses. These beliefs are held by people of various demographic groups, occupations, and economic levels.

A number of scholars and skeptics from different disciplines and intellectual perspectives have expressed concern about the fact that belief in the paranormal is so common. For example, K. L. Feder (1984), an anthropologist writing in *American Antiquity*, laments the findings of a survey reported by Bainbridge (1978) that revealed widespread acceptance of the notion that "human physical and cultural evolution was directed by extraterrestrial aliens" (pp. 525-526). Regarding these findings, Bainbridge (1978) concluded: "Apparently our university does not give students the knowledge to protect them from intellectual fraud" (p. 39).

*Presentation of a disclaimer before the program 'Beyond Reality' significantly reduced the tendency for viewers to endorse paranormal beliefs.*

One claim that consistently appears across much of the literature dealing with paranormal beliefs is that the mass media should accept a major responsibility for encouraging people toward uncritical acceptance of paranormal claims. For example, in a guest essay for *Time*, James Randi (1992), a magician and skeptic, noted that the reason for the prevalence of "absurd beliefs" among the populace of every culture is to be found in the uncritical acceptance and promotion of these notions by the media" (p. 80).

Among scholars, the indictment of the media for encouraging the adoption of paranormal beliefs is far harsher than Randi's. Even a casual perusal of the literature reveals that its scholarly contributors subscribe widely to the notion that the media unduly influence people to accept paranormal claims by giving excessive attention to reports of paranormal activity, and by encouraging uncritical acceptance of the veracity of these reports (Feder 1984; Kurtz 1985). For example, Kurtz (1985) refers to the "dominant influence of the media in forming [paranormal] attitudes and beliefs," and he charges that the media often "behave totally irresponsibly in treating 'paranormal' occurrences" (pp. 359-360). Along this same line, Feder (1984) blames the media for the problems faced by archaeologists in their attempts to overcome the many reports of "unverified claims."

The charge that the media play a crucial role in influencing paranormal beliefs is not new (see Maller and Lundeen 1932), but it it may be more widespread since the rise of television. Surprisingly, however, there is a lack of direct empirical evidence to substantiate the claim that mass media influence paranormal beliefs. This is particularly interesting because it suggests that the scientists, philosophers, and skeptics, who often blame the media for disseminating scientifically unproved ideas about the paranormal, simultaneously appear to be relatively unconcerned about offering scientific evidence for their claim of the pernicious effects of the media in this domain. Because of the lack of evidence in favor of the notion that media depictions of the paranormal do influence paranormal beliefs, the study reported below investigated this issue.

While some newspapers carry disclaimers next to astrology columns, this practice does not appear to be particularly prevalent (see Gersh 1987). More common than the use of disclaimers may be the use of *truth claims* that inform the public that media depictions of paranormal activity are actually based on documented occurrences. Such truth claims are used frequently in news documentaries to substantiate the fact that the depicted events actually happened. Several recent television programs (e.g., "Unsolved Mysteries," "Haunted Houses: Real Stories") follow this news documentary style. While research is important on the effects of paranormal truth claims presented in a news documentary, the present study is concerned with the use of disclaimers and truth claims for paranormal events that occur in the context of dramatic entertainment.[1]

One recent television series that regularly featured the dramatic depiction of paranormal events was "Beyond Reality" (USA Network). This 30-minute program began with a short truth claim: "The following story of paranormal activity is based on reported incidents." Each episode in the series depicted the story of one primary character's experience with some type of paranormal event, which was always depicted as if it actually happened. One question concerns the potential effects of the information

presented prior to each episode. Did the truth claim that appeared before each episode lend more credibility to the program content and influence people to believe more in the validity of paranormal events? How did the effect of this truth claim differ from the effect of other types of information (i.e., *disclaimers*) that might have appeared in the same place—or from no information at all? These questions were explored in the experiment reported below.

Viewers of typical television entertainment fare are not generally motivated to engage in careful, rational deliberation on the points that might be used to support or refute the validity of paranormal activity. Their viewing orientation is more likely to be toward satisfying some emotional need (Rubin 1986) or toward affecting their current mood (Zillmann 1988). The inclusion of either a truth claim or a disclaimer prior to an episode of dramatic entertainment should generally increase the viewer's motivation to evaluate the veracity of the depicted events. One question addressed by the present research concerns the effects of a televised, dramatic depiction of paranormal activity that occurs in the absence of any disclaimer or truth claim, and is consequently seen by viewers who are relatively unmotivated to make judgments about the veracity of the program content.[2]

## *The Study*

Students enrolled in a Communication class at a large midwestern university served as participants in the study ($N$ = 187; males: $n$ = 56, females: $n$ = 131.)[3] Participation was offered as one alternative for discharging a course research requirement.

In a single-factor experiment, the participants were randomly assigned to one of five experimental conditions. In four of the conditions, everyone watched the same episode of "Beyond Reality," but the information that appeared prior to the episode was varied. In a fifth condition (control group), participants viewed an episode of a situation comedy that contained no references to paranormal activity.

Two weeks prior to their viewing of the videotapes, participants completed a 30-item questionnaire designed to measure the extent to which a respondent expressed belief in paranormal activitity. (See Jones, Russell, and Nickel 1977 and Tobacyk and Milford 1983 for sources on these items.) Each of the items was rated on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). To disguise the true purpose of the experiment, the questionnaire also contained a variety of other items, unrelated to paranormal beliefs.

Participants were run through the laboratory phase of the study in groups of from two to five. To prevent any interaction during the session, particpants were instructed to sit at one of five desks that were separated by visual barriers. They were instructed to relax and enjoy the television program and the commercials that they were about to see, but to be sure not to interact with one another during the program. Commercials were mentioned in an attempt to disguise the true purpose of the experiment. Observations through a one-way window indicated that no interaction took place between any of the participants.

During each viewing session, participants watched one of five different videotapes. These videos had been randomly assigned to the various viewing sessions prior to the arrival of the participants. In four of the conditions, participants viewed a 30-

minute episode of the program "Beyond Reality," including the commercial messages as they were originally broadcast. The only difference between these four conditions was the message that was professionally edited at the beginning of the program to convey various impressions about the upcoming content. The messages appeared in white letters on a dark background and the same narrator's voice read each message. These messages were edited into the same place where the actual "truth claim" originally appeared when the episode was broadcast. After the final data collection, participants were asked about their perceptions of the edited messages. No one expressed suspicion that the messages were not actually part of the program as it had been originally broadcast. The different messages were as follows:

> *Reality:* The following scenes depict a reenactment of paranormal activity that was actually reported and documented by the people involved. While the people in these scenes are professional actors and actresses, the characters that they portray are real.
>
> *Fiction:* The following scenes depict paranormal activity that was never actually reported and documented. The characters shown in these scenes and the events that occur are purely fictitious and are presented only for your entertainment.
>
> *Impossible:* The following scenes depict paranormal activity that was never actually reported and documented. The events that occur in these scenes are impossible from a scientific standpoint in that they contradict the known laws of nature. There is no evidence that these events—or any other events of a similar nature have ever actually happened.

In the fourth condition, *no message* of any kind appeared prior to the program. Participants in a *control* condition watched an episode of "Perfect Strangers" (a situation comedy) that contained no reference to paranormal activity.

Following the video, which depicted various scenes of astral projection involving a husband and his estranged wife, the experimenter returned and requested that the participants respond to some questions. The first portion of the questionnaire asked about the program's various commercials. These questions were designed to continue the disguise of the true purpose of the investigation. Following these questions, participants responded to the same items on paranormal activity that had been completed several weeks earlier. Participants were also asked to report their own idea about the purpose of the experiment.

Three weeks after the conclusion of the experiment, the experimenter returned to the participants' class and asked everyone to complete a subset of the items on paranormal activity once again.[4] After these questionnaires had been completed, a full debriefing took place. Those not present at this session were informed later about the purpose of the experiment and referred to the experimenter if they had questions.

Of the 30 items used to assess paranormal beliefs, 7 items were singled out as ones that would be most likely to be affected by the program "Beyond Reality." These items are marked accordingly in Table 1, and analyses revealed that they formed a reliable measure. The remaining 23 items on paranormal beliefs asked about very specific phenomena that were not depicted in "Beyond Reality" and thus were less likely to be affected by seeing the program (e.g., palm

TABLE 1

Respondents Indicating Agreement, Disagreement, Or Uncertainty About Paranormal Beliefs

| Item | Agree % | Undecided % | Disagree % |
|---|---|---|---|
| *Mind or soul can leave body and travel (astral-projection) | 30.0 | 35.3 | 34.8 |
| *Psychic phenomena are real and should be studied scientifically | 42.2 | 25.1 | 32.7 |
| UFO sightings are either other forms of physical phenomena (such as weather balloons) or hallucinations | 24.6 | 28.9 | 46.6 |
| The Abominable Snowman of Tibet really exists | 12.3 | 31.0 | 56.7 |
| I firmly believe that ghosts or spirits do exist | 69.0 | 13.4 | 17.7 |
| Black magic really exists and should be dealt with in a serious manner | 32.1 | 35.3 | 32.6 |
| Witches and warlocks do exist | 34.8 | 25.1 | 40.2 |
| Only the uneducated or the demented believe in the supernatural and occult | 14.5 | 7.0 | 78.7 |
| Through psychic individuals, it is possible to communicate with the dead | 15.0 | 39.6 | 45.4 |
| I believe the Loch Ness monster of Scotland exists | 21.4 | 29.4 | 49.2 |
| Once a person dies, his/her spirit may come back from time to time in the form of a ghost | 48.1 | 24.1 | 27.8 |
| Some individuals are able to levitate (lift objects) through mysterious mental forces | 24.6 | 34.8 | 40.6 |
| Telling the future through palm reading represents the beliefs of foolish and unreliable persons | 36.9 | 23.5 | 39.5 |
| I am firmly convinced that reincarnation has been occurring throughout history and that it will continue to occur | 27.3 | 28.9 | 43.8 |

reading, casting spells, the Loch Ness monster, etc.).

## *Results*

Table 1 displays the percentages of respondents who either agreed, disagreed, or were undecided about each paranormal belief statement on the initial, pre-experimental questionnaire. As the table reveals, belief in paranormal phenomena was quite common among the study's participants and parallels those levels reported by Gallup and Newport (1991) in a random sample of Americans.

To examine the possible effects of the disclaimers and the truth claims presented just prior to the episode of

| Item | Agree % | Undecided % | Disagree % |
|---|---|---|---|
| I firmly believe that on some occasions I can read another person's mind via ESP (extrasensory perception) | 34.2 | 18.7 | 47.1 |
| ESP is an unsual gift and should not be confused with elaborate tricks used by entertainers | 43.9 | 27.3 | 28.9 |
| *†Ghosts and witches do exist outside the realm of imagination | 43.8 | 27.3 | 28.9 |
| * Supernatural phenomena should become part of scientific study | 34.8 | 31.0 | 34.3 |
| *†All reports of "scientific proof" of psychic phenomena are strictly sensationalism with no factual basis | 18.1 | 38.5 | 43.3 |
| It is possible to cast spells on individuals | 13.4 | 26.7 | 59.9 |
| With proper training, anyone could learn to read other people's minds | 15.0 | 26.2 | 58.8 |
| It is advisable to consult your horoscope daily | 11.2 | 17.1 | 71.7 |
| Plants can sense the feelings of humans through a form of ESP | 11.2 | 36.4 | 52.4 |
| ESP has been scientifically proved to exist | 9.1 | 61.0 | 30.0 |
| *†Many phenomena (such as ESP) will one day be proved to exist | 62.6 | 19.3 | 18.2 |
| Psychokinesis, the movement of objects through psychic powers, does occur | 26.7 | 39.6 | 33.6 |
| A person's thoughts can influence the movement of a physical object | 16.1 | 44.9 | 39.1 |
| Mind reading is not possible | 22.0 | 26.2 | 51.9 |
| Many special persons have the ability to predict the future | 36.9 | 25.7 | 37.4 |
| * During altered states, such as sleep or trances, the spirit can leave the body | 26.7 | 32.1 | 41.2 |

*Note:* Percentages are based on 187 respondents for each item. "Strongly agree" and "Agree" are combined into one category for this table. "Strongly disagree" and "Disagree" are similarly combined.

* Designates an item on the 7-item scale.
† Designates an item that was omitted on the measure three weeks after program viewing.

"Beyond Reality," a paranormal-belief change score was computed for each participant. The score on the seven-item scale taken before viewing was subtracted from the corresponding score taken just after viewing. As a result of this procedure, any *increase* in paranormal beliefs after the program would be revealed by a *positive* score. Any *decrease* in paranormal beliefs would be revealed by a *negative* score. A one-way ANOVA for unequal cell-sizes across the five experimental conditions was computed on the change scores. The results of this analysis revealed a significant main effect for the manipulation of prior information [$F(4, 106) = 2.72$, $p < .03$].[5] Comparisons of the means revealed that participants who viewed

TABLE 2

Mean Change Scores in Paranormal Beliefs Immediately Following Exposure to a Televised Depiction of Paranormal Events

| Reality | Fiction | Impossible | No Message | Control |
|---|---|---|---|---|
| $-.96_{ab}$ ($n$ = 23) | $-1.58_{ab}$ ($n$ = 19) | $-2.04_{a}$ ($n$ = 25) | $+1.59_{b}$ ($n$ = 22) | $-.82_{ab}$ ($n$ = 22) |

*Note:* Negative scores reflect reports of *decreased* paranormal belief after the program, relative to beliefs measured two weeks earlier. Means having no subscript in common differ at $p < .05$ according to the Newman-Keuls post-comparison procedure.

TABLE 3

Replication Analysis of Table 2 Means With Participants Who Also Responded Three Weeks After Viewing

| Reality | Fiction | Impossible | No Message | Control |
|---|---|---|---|---|
| $-.25_{b}$ ($n$ = 16) | $-1.93_{ab}$ ($n$ = 15) | $-2.79_{a}$ ($n$ = 19) | $+1.23_{bc}$ ($n$ = 13) | $-.50_{ab}$ ($n$ = 16) |

*Note:* Negative scores reflect reports of *decreased* paranormal belief after the program relative to beliefs measured two weeks earlier. Means having no subscript in common differ at $p < .05$ according to the Newman-Keuls post-comparison procedure.

the program with no prior information of any type ($M$ = 1.59) were significantly more likely to report *increased* paranormal beliefs when compared with the participants who viewed the program in the *impossible* condition ($M$ = -2.04). Table 2 displays the full results of this analysis. When this same analysis was conducted using only the participants who responded to the questions three weeks later (see note 4), essentially the same results emerged. Table 3 displays the full results of this analysis.

In order to assess the longevity of the effects revealed in the analyses above, change scores were similarly computed using the measure of paranormal beliefs assessed three-weeks after participants had viewed the program. This analysis produced a pattern of means that was similar to those reported immediately after viewing. Table 4 displays the full results of this analysis.

## *Discussion*

The results of the initial questionnaire indicated that paranormal beliefs were widespread among this particular sample of college students. These findings are typical when compared to other recent surveys of paranormal beliefs in college student populations (Tobacyk, Miller, Murphy, and Mitchell 1988). It is interesting to note the significant proportion of respondents who indicated uncertainty about the various paranormal belief items

TABLE 4

Mean Change Scores in Paranormal Beliefs Three Weeks Following Exposure to a Televised Depiction of Paranormal Events

| Reality | Fiction | Impossible | No Message | Control |
|---|---|---|---|---|
| $-1.06_{ab}$ ($n$ = 16) | $-2.60_{a}$ ($n$ = 15) | $-1.73_{ab}$ ($n$ = 19) | $+1.00_{b}$ ($n$ = 13) | $-.44_{ab}$ ($n$ = 16) |

*Note:* Negative scores reflect reports of *decreased* paranormal beliefs three-weeks after the program relative to beliefs measured two weeks prior to program exposure. Means having no subscript in common differ at $p < .05$ according to the Newman-Keuls post-comparison procedure.

(see Table 1). For issues on which beliefs are uncertain, it is reasonable to assume that there may be more opportunity for media influence than for issues on which beliefs are already strong.

The results of the experiment provided evidence for the fact that media depictions of a paranormal event may have an impact on viewers' paranormal beliefs. Specifically, the findings indicated that the use of a disclaimer message before the program tended to reduce beliefs in the paranormal, while the use of no message at all tended to increase these beliefs. It could be that the use of a strong disclaimer forces viewers to process program content with the idea firmly in mind that the depictions are not true. But the data indicate that the type of disclaimer used may also be important. The message that highlighted the *impossibility* of the depicted events tended to cause a greater reduction in paranormal beliefs, even though the fiction message also caused a significant reduction relative to the no-message condition (see Tables 2 and 3).

Interestingly, the use of a "truth claim" did not result in increased beliefs in paranormal activity. In fact, the mean indicated a tendency for viewers in this condition to decrease their paranormal beliefs slightly. It could be that the appearance of *any* message prior to a paranormal depiction—even one that affirms the veracity of the events—serves to focus attention on the possibility that the depicted events are deserving of some doubt.

Surprisingly, the effects of the experimental manipulation showed some signs of persisting up to three weeks after the program was viewed. The direction of the mean for each condition was similar to that observed immediately after viewing, and the size of the statistical effect was nearly the same as the one from the analysis of immediate effects. This evidence suggests that viewers who watch programs that feature paranormal activity may be influenced in their paranormal beliefs for weeks after viewing.

While replication and extension of these results will be important (as with any scientific finding), the data from this study do suggest that there is merit in the widespread claims of scientists and skeptics that the media exert some influence in the domain of paranormal beliefs.

In one sense, the effects of media depictions of paranormal activity may not seem to carry the social importance of other media effects reported in the literature over the years. The effects of viewing violence on subse-

quent aggressive behavior (Huesmann and Eron 1986), for example, are often dramatic and carry social consequences that few would deny (but see Freedman 1984). Nevertheless, it seems apparent that after reflecting upon the potential implications of media impact on paranormal beliefs, there is a great deal at stake. The ability to correctly discern whether or not a given phenomenon really exists strikes at the very heart of human endeavor. In the age of electronic communication, the long-used (and deeply ingrained) principle of "seeing is believing" may be increasingly inadequate as an epistemological standard. This is not to suggest that extraordinary and incomprehensible events never actually occur. But it seems important to be able to correctly discern if, and when, they do. And it seems especially important that we do not accept the veracity of such events just because they are witnessed on television. We hope that the study presented here will serve as an initial step toward a more comprehensive understanding of how televised depictions of paranormal events function to influence our judgments about the events that actually take place in the real world.

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## *Notes*

1. One obvious need in the study of the potential for the media to influence para-

normal beliefs is systematic content analysis of current media offerings. Casual observation reveals that with the advent of cable television, there has been an increase in the frequency of messages that deal with paranormal claims. For example, in the past few years, cable networks have begun to sell commercial time to "psychics" and "fortune-tellers" who encourage viewers to call a 900 number to obtain their "professional" advice. In addition, with the proliferation of cable channels, it appears that programs dealing with paranormal themes may also have increased.

2. The effects of motivation to scrutinize a message on subsequent attitude change are well documented and understood within the context of the elaboration likelihood model of persuasion (Petty and Cacioppo 1986). Persuasion that occurs when respondents are not highly motivated to scrutinize a message is characterized as a process that is influenced by "peripheral cues." In the present case, it may be possible to conceptualize the visual features of televised accounts of paranormal events as peripheral cue content.

3. Preliminary analyses revealed that sex was not related to any of the dependent measures of interest in the study. Consequently, it does not appear as a factor in any of the main analyses reported in the results.

4. Unfortunately, because these data were collected during a class period, there were strict time limits for the session. Only a small number of paranormal belief items could be included in the questionnaire. Consequently, three of the items that were used on the seven-item scale reported in the results were not measured three weeks later. An abbreviated four-item measure that analyses revealed to be reliable was used instead for the analysis of longer-term effects. Of the 111 participants who were included in the analysis of immediate program exposure, 32 were not present during this final phase of data-collection. This produced an "*N*" of 79 for the analyses of long-term effects (males: $n = 24$; females: $n = 55$).

5. In any experiment of this type, one threat to internal validity is the possibility that participants were aware of the general purpose of the study and subsequently modified their responses. In order to guard against this threat, a particularly conservative course was followed. First, the inclusion of questions about the commercial messages in the episode of "Beyond Reality" were designed to obscure the focus on paranormal beliefs. Second, the inclusion of a "hypothesis guess" question at the end of the study revealed that no participant even suspected that the disclaimer information had been manipulated in any way. Third, in response to the "hypothesis guess" question, if a respondent even mentioned that he/she thought the study was about paranormal beliefs, his/her data were not included in the analyses. Most participants expressed the belief that the study was concerned with recall of commercial messages. This procedure yielded an $N = 111$ for the major analyses (males: $n = 33$; females: $n = 78$).

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A longer version of this paper was competitively selected for presentation to the Mass Communication and Society Division of the Association for Education in Journalism and Mass Communication annual meeting in Kansas City, August, 1993. The long version is available from the first author upon request.

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# Synchronicity and The Archetypes

ERNEST GALLO

The doctrines of the Swiss psychiatrist Carl Gustav Jung (1875-1961) are still with us. A modified version of the Jungian archetypes was nicely packaged by Joseph Campbell in a well-received series on public television (*The Power of Myth*). The associated doctrine of synchronicity is still cited in occultist and pseudo-scientific literature as a scientific basis for astrology and other improbabilities.

Jung was a formidable scholar and a trained scientist. Although he tried to cling to a degree of skeptical restraint, he was deeply drawn to the occult. His mother claimed to be in contact with spirits; his young cousin caused knives in a drawer to shatter with a loud bang. Jung was so impressed with this cousin that he wrote his dissertation about her. While Jung was arguing with Freud about psychic phenomena, a loud noise emanated from a bookcase; Jung predicted it would be repeated and was highly impressed when this portentous prediction came true. Nor was he surprised when he saw the vision of a face half buried in the pillow next to him; to one in contact with the mysteries, such visions come.

But Jung was far more than a simple occultist. He was able to construct his system with the aid of an impressively wide-ranging scholarship; at his best, he is engagingly skeptical about his wilder speculations. But always through the skepticism there shines the conviction that his insight has hit home, and that no rational criticism can or should stand in the way of what he calls "psychological truth." Jung sought objective evidence for the archetypes, but finally took refuge in his own magisterial convictions.

The so-called archetypes are "mental predispositions independent of individual experience, which have their source in the collective uncon-

*Evidence offered in support of synchronicity and the archetypes depends solely on the imprecision of Jung's language and concepts.*

scious" (Friedman and Goldstein 1964). An individual in crisis may feel the healing powers of the communal archetype: access to that archetype arises through an acausal process that Jung called "synchronicity."

Jung's doctrine of synchronicity implies that "one and the same (transcendental) meaning might manifest itself simultaneously in the human psyche and in the arrangement of an external and independent event" (Jung 1955). Such a confluence of events has been well described as follows:

> At certain moments of heightened spiritual awareness, the archetypal meaning-structure that spans the mind and the world flashes into visibility. This happens in the form of a "meaningful coincidence." The one event does not cause the other, but the pattern of the universe becomes visible to us in their congruency. (Price 1989)

The notion that the physical world bothers to reflect our personal difficulties seems like wild fantasy; but Jung was convinced of its literal truth, and offered this anecdote in evidence:

> A young woman I was treating had, at a critical moment, a dream in which she was given a golden scarab. While she was telling me this dream I sat with my back to the closed window. Suddenly I heard a noise behind me, like a gentle tapping. I turned round and saw a flying insect knocking against the window pane from outside. I opened the window and caught the creature in the air as it flew in. It was the nearest analogy to a golden scarab that one finds in our latitudes, a scarabeid beetle, the common rose-chafer (*Cetonia aurata*), which contrary to its usual habits had evidently felt an urge to get into a dark room at this particular moment. (Jung 1955)

His patient supposedly needed a nonrational experience to shake her out of her imprisonment by Cartesian philosophy. After the scarab incident she improved markedly. She had been in need of rebirth: the rising Sun-god is called "the scarab" (*khepri*), a culturally determined image of the archetype of rebirth.

How strong is this anecdotal evidence? It's a long leap from the death and rebirth of the sun to the rebirth of a patient from the chains of rationalism. The vision of the scarab does not seem tailored to *this* specific patient's needs: many people (and not only patients) can be described as in need of regeneration—a word with a wide range of referents. The beetle also represented self-generation, the Egyptians apparently believing that the male inserts the egg in the dung-ball and thus, phoenix-like, gives birth to himself unassisted.[1] One could easily—all too easily—apply this image to a wide variety of psychic states: the need to redefine oneself, to learn responsibility, and so on. The beetle image seems specifically applicable to

*"Being freed of content, the archetype can be made to signify almost anything."*

Jung's patient only if we confine ourselves to one possible set of interpretations while ignoring the rest.

If one myth does not supply a suitable match, another will. The beetle figures in a number of myths that can easily be trimmed to fit Jungian categories, such as the devouring mother, the sacred wedding, ego inflation, the so-called quaternity. Given this rich collection, the Jungian analyst can easily find parallels to the psychic state of the patient: it is necessary only to pick and choose among myths until we find one that suits.

Jung might object in these terms: "I do not claim that *every* time a beetle appears in myth, it must represent liberation from the straitjacket of rationalism. The beetle itself is not an archetype. It *points to* an archetype that underlies it and that brings itself to our attention through the image of the beetle." But we shall see that in making the archetypes transcend any specific representation, Jung is safely tucking them away from rational inspection.

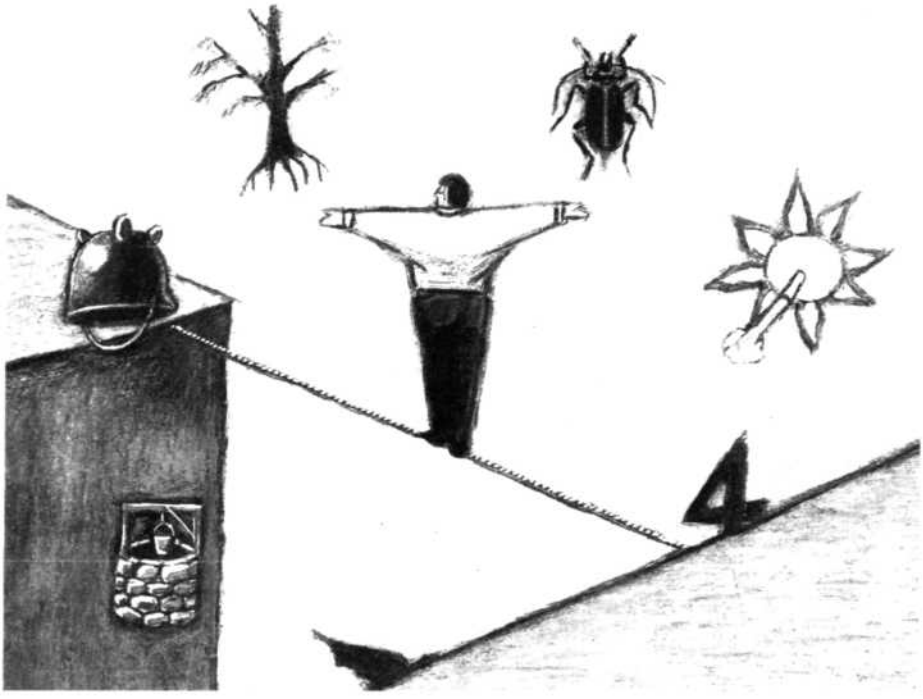
## *The Ambivalence of the Archetypes*

One difficulty in examining archetypes is that we cannot access them directly. When we consider the motif of the beetle in world myth we are not directly examining an archetype but only one of its culturally determined manifestations. Archetypes "are no longer contents of the unconscious, but have already been changed into conscious formulae taught according to tradition. . . ." (Jung 1959). Further, cultural tradition does not guarantee that all members of the culture will image the archetype in the same way: "The archetype is essentially an unconscious content that is altered by becoming conscious and by being perceived, and it takes its colour from the individual consciousness in which it happens to appear."

It is most difficult to connect the archetype to the image, since the image will differ from culture to culture and, *within* a given culture, from one person to another. We might be able to cope with this remarkable indeterminacy if we knew the *content* of a given archetype. But this is an impossible dream: "One must, for the sake of accuracy, distinguish between 'archetype' and 'archetypal ideas.' The archetype as such is a hypothetical and unrepresentable model, something like the 'pattern of behavior' in biology" (Jung 1959).

We will pass over the fact that a pattern of behavior in biology is something quite specific, describable in a finite number of words. For Jung, rational analysis stands helpless in front of the depth and richness of the archetypes: "The fact is that archetypal images are so packed with meaning in themselves that people never think of asking what they really do mean. . . . And when he starts thinking about them, he does so with the help of what he calls 'reason'—which in point of fact is nothing more than the sum-total of all his prejudices and myopic views" (Jung 1959).

Being freed of content, the archetype can be made to signify almost anything. Being so loosely tied (if at all) to specific images, any and all connections can be made among archetypes. These can be shuffled around and recombined freely to generate the most astounding and seemingly profound implications. Here is how, in a few swift steps,



Marie-Louise von Franz demonstrates that the Great Mother, the World Tree, Sun, Well, Death, and Father are all basically one:

> The World Tree is the Great Mother and is related to the Sun which is born every morning from a *tree* as its fruit. Under the World Tree there is often a Well, and this Well is also the Great Mother. But she is also the Death Mother, for in myth a well is the door to the land of the dead. The World Tree is phallic, so that it is the Father as well as the Mother. The phallus is also connected with the Sun, and the Great Mother often has a phallic broom or an enormous nose. (Marie-Louise von Franz 1980: paraphrased)

We supposedly know that the World Tree is the Great Mother because "in the tomb of the Egyptian King, Sethos the First, there is a world tree and on its trunk it has a breast from which the king drinks" (Von Franz 1980). This image is interesting, but does this single emblem in Sethos's tomb prove very much? Given a sufficiently wide range of examples from many cultures, one could make any connection one wishes. But of course that is precisely what von Franz thinks of as a *strength* of the archetypal system: "If one knows enough mythology one can make a completely consistent web from every great archetype to every other great archetype" (von Franz 1980). Yes, and that is precisely the trouble. If every archetype *is* mysteriously identical with every other, then virtually anything can be proved from the body of data.

The free association used by von Franz is related to the technique of *amplification* used by Jungian analysts. If, for example, the patient offers a dream that seems archetypal, the analyst will thoroughly review all possible parallels between the dream

*"That the walls of the archetypes are so thin that the one can flow into and become the other may not be a sign of a wondrous unity as much as a way of removing all constraints from the logic of the investigation."*

and *other* archetypes lest the patient miss out on any part of the marvelous web of meanings. In brief, the analyst is suggesting to the analysand a wide range of cleverly interrelated interpretations. The procedure may be therapeutic, but what does it do to Jung's claim that he has *discovered* archetypes buried deep in the psyches of a multitude of patients? The mine has been salted. The material delivered by analysands in a therapeutic setting can no longer count as raw data (Friedman and Goldstein 1964).

That the walls of the archetypes are so thin that the one can flow into and become the other may not be a sign of a wondrous unity as much as a way of removing all constraints from the logic of the investigation. The more fluid the overlap permitted among archetypes, the greater is the opportunity for finding any archetype in any image, and any image in the psyche of any patient.

## *Jung and the Book of Changes*

We can illustrate the ambiguities of Jungian interpretation by examining Jung's comments on the Chinese *Book of Changes* (the *I Ching*). In writing a foreword to Hellmut Wilhelm's translation of the *I Ching* (1950), Jung consulted that work about his intention to introduce the Eastern classic to the Western mind. The book answered with "The Cauldron" (Hexagram #50), in which Jung finds an enthusiastic endorsement of Wilhelm's translation. Now, one *could* easily read that hexagram as the voice of a skeptic:

> A cauldron with legs upturned/ Furthers removal of stagnating stuff.

(*Interpretation:* The *I Ching* should be overthrown, and our minds cleansed of antique superstition.)

> The handle of the cauldron is altered. One is impeded in his way of life.

(*Interpretation:* Our means of grasping the *I Ching* have been disastrously changed by the current translation, which impedes understanding of the text.)

In other words, one could plausibly discover that this ancient book of soothsaying has denounced both itself and its modern translation! In contrast, Jung's reading of "The Cauldron" showed that the *I Ching* was delighted both with the new translation and with Jung's introduction. For Jung the upside-down cauldron is not *overthrown* but (quite arbitrarily) simply *unused.* Again, Jung ignores the lines about the *altered* handles and instead quotes quite different lines about *golden* handles, which then are conveniently made to refer to the new translation, which will give a new grip (*Griff; Begriff* = understanding) on the text.

## *The Pretense of Objectivity*

Can Jung's approach be made so rigorous as to begin to resemble a scientific method? Or if the Jungian approach cannot be made rigorous, can modern science perhaps be made to seem poetic, evocative—i.e., something less than rigorous? If so, then Jung can claim to be, at least in some very loose sense, scientific.

Jung assures us that overwhelming numbers of case studies provide objective evidence for the archetypes. But it is not clear that a particular image taken from world mythology must mean precisely what the Jungian says it must mean. One relies solely on the ad-hoc judgment of the Jungian who is making the observation. Our confidence is not increased when we are told that *only* a Jungian analyst has an adequate background and the correct mind-set to evaluate the data gathered (Rieff 1964).

Jung claims that time and again his patients spontaneously reproduce ancient visual representations of psychic processes: mandalas, winged figures, etc. (Jung 1969). The judgment that the patient's "very vision" is exactly equivalent to the traditional image is simply Jung's judgment: would another observer agree?

Jung cites an astounding case of the schizophrenic who saw winds produced by the penis of the sun: this private myth parallels an obscure Mithraic myth of the winds pouring from a tube in the sun. Is the coincidence meaningful? The sun's penis as the source of the wind does not seem firmly connected to any human need to organize experience: it is hard to imagine a stern evolutionary process weeding out organisms whose nervous systems failed to develop this odd image.

Matters become even worse when evidence is sought in the world of science or mathematics. Jung fancied that he had united the inner world of psychology with the outer world of modern physics. His disciples assure us that the supposed collapse of Newtonian mechanics into theoretical paradox has made this union possible. The details are alarming. We are told that the response of patients to a Rorschach test can be understood only if we postulate holes in "psychic space" similar to the wormholes of theoretical physics (McCully 1974). We must realize that "Bohr showed that the physical universe is made up of facts and their opposites" (Keutzer 1984). This fantastic distortion does not really represent Bohr's principle of complementarity; but it does echo Jung's assurance that in his system an assertion is true only if its opposite is also true (Jung 1954a).

According to Marie von Franz (1974), all the integers are archetypes. In a chapter concisely titled "The Number Four as the One-Continuum's Model of Wholeness in All Relatively Closed Structures of Human Consciousness and in the Body," we learn that four is a "border number." Equations of a degree higher than four cannot be algebraically solved: consequently four is "an apex and simultaneously the end of a preceding ascent." For good measure, Einstein's universe has four dimensions, and "the triple codes of the genetic substance DNA . . . are built up on a *quarternio* of bases which can be combined in $4^3 = 64$ variations"—supposedly an echo of the structure of the *I Ching* hexagrams. Von Franz provides a photograph of a developing egg divided into four parts: this proves that the egg has a "quarternary structure."

All these associations are utterly arbitrary. *Any* small integer can be shown to be a "boundary number": for example, there are no more than *five*

regular convex polyhedra. Einstein's universe has four dimensions but Kaluza's has five, and some modern theories postulate ten or twenty-six. Nor does the number four, important in Jungian symbology, have any special significance in the developing egg. Finally, although in the photograph provided the developing egg indeed has divided into four cells, it earlier had two and later it is destined to have eight, sixteen, thirty-two, etc.[2] There is no reason to fix on the four-cell stage as representing some mystical content.

## *Summing Up*

Jung is at times vividly aware that theory determines what the would-be empiricist actually *sees* (Jung 1959) and that the "personal bias of the observer" plays a large role in interpreting data (Jung 1961). Jung does not even insist on the truths of his theories: the elements of his hypotheses have temporary, provisional status as "mere auxiliary concepts that can be laid aside at any time" (Jung 1954b). Indeed, he insists that a psychological principle is true only if its opposite is also true.

This last criterion may allow Jungian theory to be sensitive to the paradoxes and contradictions of the psyche, but it also effectively protects that theory from criticism. If contradictory propositions are true, no conclusion is forbidden.

How then does Jung try to overcome these difficulties? He seeks objective evidence in world cultures: in art, myth, and literature. The existence of archetypes can be objectively verified because they can be found in the cultural record. However, world culture is so diverse that it may be impossible to *fail* to locate an objective parallel to a given state of mind: the large picture-book of world-symbols will surely provide a match *somewhere.* Jung is not dealing with hard-edged concepts: Even in the apparently striking case of the golden scarab, there is considerable distance between the patient's need for change and the Egyptian notions of rebirth. It is the creative imagination of both therapist and patient that bridges the gap. The coincidence provides each with a kind of personal excitement that establishes the experience as numinous and hence valid: without that incommunicable sense of heightened affect, the coincidence would not have been considered meaningful in the first place. The degree of excitement of the investigator does not ensure that the method is scientific: an objective observer may see no meaning at all in the coincidence.

In addition, Jungians claim that each plate in the picture-book of archetypes is *culture-specific.* The archetypes in the collective unconscious, in themselves formless and without content, receive specific forms from different cultures, which embody them differently. Richness of meaning is secured by progressively emptying the archetype of specific—and hence limiting—content: in the end the archetype becomes an empty domain, safely transcendent and well beyond scrutiny.

The doctrine of the archetypes is important as a model of the pseudo-system, one that apparently draws on a wide range of objective data but that in reality carefully selects its evidence; one whose claim to transcendental knowledge actually serves to protect the system from critical inspection; one whose pretense to scientific rigor depends solely on the slipperiness of its private language. The elaborate Jungian doctrine of the archetypes and of synchronicity is little more than a house of cards, one that has taken far too long to tumble.

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## Notes

1. The symbolism may have arisen from the coincidental resemblance of the Egyptian word for "beetle" and the verb "become," as well as from the fact that the dung beetle rolls before it a ball of dung "in which ancient Egypt beheld an image of the world" (Jean Henri Fabre, *The Sacred Beetle and Others.*)

2. This point about the developing egg is made by Dennis Merritt, a practicing Jungian analyst and an insect pathologist. Although a dedicated Jungian, and one convinced of the truth of synchronicity, Merritt (1989) says of von Franz's excursions into biology, "If the author demonstrated so little understanding of how the genetic code works, how can one begin to believe the sweeping conclusions she makes about the relationship between the *I Ching*, numbers and the genetic code?" I am grateful to my colleague Richard Noland for bringing this essay to my attention, and to Dennis L. Merritt for providing bibliographic information.


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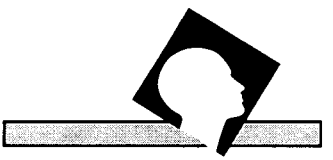
# The Synthetic Mind Clashes with the Reductionist Text

FRANK REUTER

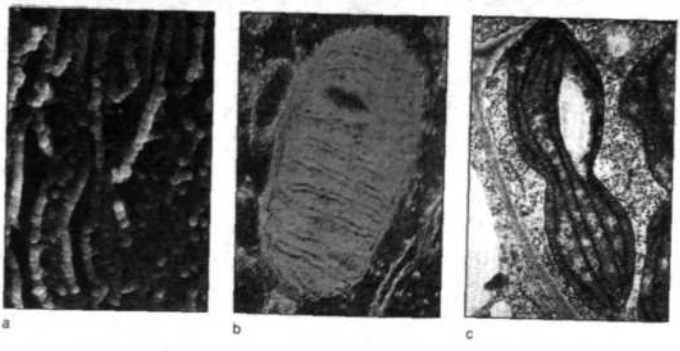
Assume for a moment that you are back in seventh grade and that you have been given a textbook reading assignment by your science teacher in preparation for the next day's class. More than likely you will come across passages like the following:

> Leaves are the plant organs that trap light and make food for the plant. The food made by leaves often becomes food for animals. Leaves vary in size, shape, and structure. Many plants can be identified by the shapes of their leaves. The shape of an oak leaf differs from a maple or a rose leaf. A leaf is made up of a blade and a stalk. The leaf blade is a plant's major organ for trapping light. The leaf stalk is called the petiole (PET ee ohl). A leaf blade is attached to a stem by the petiole. Leaves of some plants, such as grass or tulips, do not have petioles.[1]



*Oversimplistic and derivative prose in school texts makes comprehension more difficult, not less. Reductionist teaching methods likewise hamper learning.*

I select this text not because I consider it to be inferior to the average text but because it is so typical.[2] The majority of grade-school textbooks in whatever discipline use the reductionist style so apparent in these passages.[3] When I read these texts, no matter how hard I try to concentrate, the idea generally escapes me. Why? Because the style is overly simplistic. Attempting to make sure that no single statement is unclear, the textbook utilizes sentences that are simple in structure, that is, they contain only one main clause. Of necessity, sentence after sentence begins with the same subject. Ideas, in effect, are placed next to each other without their relationships being signaled by normal sentence connectives. What is absurd



a b c

### 3:7 Cell Parts

Photographs of cells magnified 40 000 to 50 000 times show tubelike structures in the cytoplasm. The tubes form a network called the **endoplasmic reticulum** (en duh PLAZ mihk · rih TIHK yuh lum), or ER. The ER connects with the cell membrane and the nuclear membrane. The ER changes constantly and is where many cell substances are made.

Ribosomes (RI buh sohmz) are tiny grainlike particles. They are so small, they can be seen only with an electron microscope. **Ribosomes** are structures where proteins

FIGURE 3–10. Ribosomes are located on the endoplasmic reticulum (a). Mitochondria (b) release energy for cell activities. Chloroplasts (c) use light energy to manufacture food.

What is the function of ribo-

The prose on this page from Heimler's *Focus on Life Science* is typical of the oversimplistic style of most grade-school textbooks.

about such writing is that *the attempt to make the writing simple actually makes it much harder to comprehend.* Grade school texts are, for the most part, unreadable.

There are simple solutions to cure this type of bad writing. When I taught freshman composition courses, such writing was common among the students, probably because they had seen it so often. I called the problem "parallel, repetitive, simple sentence structure." To cure students of writing such halting prose, I would counsel them to write a paragraph rather than a sentence at a time, thinking out the relationship of their ideas before putting anything down on paper. The results were nearly miraculous. Once any reasonably intelligent college freshman is aware of the danger of writing oversimplistic, repetitive prose and of the importance of conveying an organized, unified, properly subordinated concept, the problem disappears.

Now, think of yourself as the teacher of that seventh-grade class, frustrated that students are not reading their assignments. Can you blame the students? Probably not. The attitude of students I have talked with is this: I am not going to read my textbook until I find out which specific facts the teacher will include on the objective tests that determine my grade. This brings us to a second issue: the way we test and its ramifications for learning.

Just as our textbooks are reductionist, so are our teaching methods. Allow an anecdote to convey my point. A number of years ago, newly appointed as a professor at a state university, I was teaching a course in the history of the English language, a requirement for English majors. For several weeks, I assigned reading and

lectured at length about three qualities of language: it is (1) dynamic (it changes; Old and modern English are mutually unintelligible), (2) arbitrary (there is no necessary relationship between words and their meanings; head is *kopf* in German and *tete* in French), and (3) conventional (to convey meaning, speakers must utilize consistent, unspoken rules of language). Then I gave a straightforward test, asking that students define these three qualities, utilizing specific examples to illustrate them. Known for the clarity of my class presentations, I was stunned to find that the students' papers were absymal and that few, if any, were able to write meaningful statements about the three defined qualities. During a long discussion with the class, I was informed that I should have offered a matching test, at which time, my students averred, they would have earned A's because they understood the concepts. I did not make this concession. Although I offered the class a chance to be tested again, I argued that no matter how well they understood my words, they could not master the subject until *they too could actively verbalize the concepts.* It goes without saying that although I was teaching in a humanities department, none of those students—college juniors and seniors—had ever before been exposed to an all-essay test. Most, in fact, admitted that they *never* were called on to give more than one-sentence answers to test questions—in whatever discipline.

This pattern dominates the teaching in the majority of the country's primary and secondary schools (and in many universities). In the interests of proving that students are learning and "know" the material, instructors give true-false, matching, and fill-in-the-blank tests covering information that has to be stored only in short-term memory.

The truly sad aspect of this approach to learning—in addition to its utter failure—is that it runs counter to everything we have learned about the human mind. As any number of theorists have pointed out, the brain readily learns the most complicated things we ever need to learn. Language, for example, is so complex that it is all but a miracle that we can speak; yet any child who is not brain-damaged develops the facility to speak intelligibly about the things he or she normally experiences.

What I am proposing is that the human mind is a synthetic instrument, capable of understanding complicated ideas with facility *provided they are articulated clearly* and provided a teacher is willing to stop and explain those issues that do, at times, need to be explained as a series of intelligible step processes. The more we condescend to students and stoop below their levels to make sure that they don't miss anything, the more we bore them and destroy their motivation to learn. It is time we stopped writing textbooks as if every student were a moron who could not take in more than one piece of information per sentence. Why? Because the method does not work. The condescension to students' abilities and the lowering of expectations leads to high scores and confirms "success," but few graduates are competent, as employers readily know.

So what can be done?

For starters, textbook companies need to stop using utterly reductionist, simplistic prose. Texts should be well written and use a complete range of normal syntactic structures. When an idea needs to be subordinated to another idea, I guarantee that students will be able to see the relationship and understand the concept *if the proper sentence connectives are used.* This is certain: the more inter

esting the material is, the more eager students will be to read it. The bane of teaching is the unread assignment. Given the human propensity to be lazy and avoid responsibility, students will resist reading assignments in unreadable texts.

A second quality indispensable to readable texts is that they not be totally derivative and thus mere compilations of data. Stephen Jay Gould, in his insightful essay "The Case of the Creeping Fox Terrier Clone," demonstrates how pervasive "endless, thoughtless copying" is in our biology textbooks by tracing the common use of the fox-terrier analogy to define the size of *eohippus* (the dawn horse) in describing the evolutionary lineage of horses. Few people, he suggests, really know what a fox-terrier looks like and, therefore, probably few authors who borrowed the analogy for their textbooks knew either. They reproduced it mindlessly—as Gould himself *almost* did once. Gould asserts: "Good teaching requires fresh thought and genuine excitement, and . . . rote copying can only indicate boredom and slipshod practice."[4]

From a lifetime of reading, I am certain that any junior or senior high-school science text would benefit from the use of at least intermittent sections of excerpts from the primary writings of scientists, be they original research scientists or science "popularizers." The reason is simple, of course: a detailed, original selection reveals something about the process of a human mind at work, struggling with a problem or concept. Provided that teachers are capable of explicating such a text, students will be exposed to the excitement of ideas treated as intellectual challenges.

A final recommendation: as early as possible, examinations should include essay-type questions. The resistance to this idea will be great, for botched and confused student papers themselves become a constant proof that students are not ready to write essays. Of course bad writing is the inevitable consequence of bad models and rote teaching. As long as true understanding and intelligence depend upon an individual's ability to turn an idea around in the brain and verbalize (or write) it clearly, then essay questions are an indispensable way of knowing whether students are, in fact, mastering subject matter or merely memorizing detached, uncontextualized pieces of information.

The human mind is a synthetic instrument. To educate it, challenges must be real and they must be exciting. We will do our best for the generations that succeed us if we stop treating students as intellectual cripples. I dearly pray that when my children have children, they won't bring home for my perusal texts that make me pity them their homework assignments.

## *Notes*

1. Charles H. Heimler, *Focus on Life Science.* (Columbus, Ohio: Merrill Publishing Company, 1989), p. 157.

2. In defense of the text, it includes detailed references to evolution and Charles Darwin. And like many recent texts, it is amply and beautifully illustrated.

3. My awareness of these problems has grown over the years as I have studied my children's textbooks. I will not bore the reader with endless examples for which there is insufficient room, but the reductionist style is almost universal, no matter what the discipline. If you are a parent and don't look at your children's textbooks, this is a good time to start.

4. Stephen Jay Gould, "The Case of the Creeping Fox Terrier Clone," in *Bully for Brontosaurus* (New York: Norton, 1992), p. 166.

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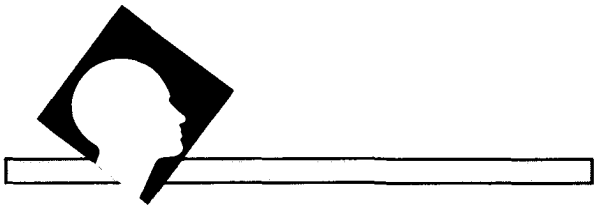
# Book Reviews



## Medical Practice Enters a New Age

*Healing Words: The Power of Prayer and the Practice of Medicine.* By Larry Dossey, M.D. HarperCollins, New York, 1993. 291 pp. Hardcover, $22.00.

GARY P. POSNER

I became aware of *Healing Words* when a producer for the NBC-TV newsmagazine "Now" called in advance of its March 30 report. The book cites a *Free Inquiry* article (Spring 1990) in which I critiqued a *Southern Medical Journal* study (July 1988) purporting to demonstrate that "intercessory prayer [by strangers, without the patients' knowledge] to the Judeo-Christian God has a beneficial therapeutic effect in patients admitted to a CCU [Coronary Care Unit]." I had pointed out a number of flaws in the study that render its findings seemingly insignificant. (See also "Intercessory Prayer as Medical Treatment: An Inquiry," a critical analysis by Jeff Witmer and Michael Zimmerman, *SI*, 15:177-180, Winter 1991.)

In the Preface to *Healing Words*, Dossey tells of how he was "surprised to discover [this] single scientific study that strongly supported the power of prayer in getting well," and how it inspired a personal quest to "probe the scientific literature for further proof of prayer's efficacy." Soon, Dossey, who had "planned to become a minister" before deciding instead to attend medical school, made the decision to pray for his patients: "I would go to my office earlier than usual each morning. . . . As the incense filled the room, I would invoke the Absolute. . . . I would shake several rattles and gourds, paraphernalia used worldwide by shamans and healers to 'invoke the powers.' . . . I felt a connection with healers of all cultures and ages."

Dossey has since retired from active medical practice to write and lecture, and he recently co-chaired a committee reviewing mind-body studies for the Office of Alternative Medicine at the National Institutes of Health.

Dossey has concluded that God need not be "up there" but rather that "the Divine factor in prayer is internal." Further, says Dossey, consciously directed prayers for a specific outcome are far less effective than prayers initiated *unconsciously:* "Unobstructed, the unconscious during sleep and dreams may be free to realize its natural, innate affinity with the Divine." Such speculative bridges throughout the book, and the puddles of "scientific" evidence that they serve to interconnect, evoke images of Percival Lowell's illusory Martian network of canals and oases. And any similarity in Dossey's philosophy to "negative psi" is no mere coincidence—Dossey embraces many such parapsychology experiments as

among his strongest "scientific" evidence.

Dossey's detailed discussion of the *SMJ* CCU study begins predictably enough: "If the technique being studied had been a new drug or a surgical procedure instead of prayer, it would almost certainly have been heralded as some sort of 'breakthrough.' " But I was taken aback as Dossey then proceeded to offer a critical assessment of the study to rival my own. Despite his earlier praise of the study that had so inspired his quest, Dossey ultimately was left with the realization that "this study has missed the mark. . . . We would expect greater evidence than a few small percentage points of improvement. We would want to see statistically significant life-or-death effects, which simply did not occur."

Dossey concurs with the "many researchers [who] feel it is easier to study the effects of prayer in simple, *nonhuman* living systems [emphasis in original]. Prayer experiments in simpler life forms are much less ambiguous, involve fewer variables, and are easier to interpret." He cites many "consistent, replicable, and robust" experiments from the parapsychological literature, and mentions "the late Olga Worrall, the well-known psychic healer," who supposedly demonstrated an ability to "protect" one of two samples of bacteria exposed to a toxic agent. The results, published in a 1980 parapsychology book, "showed that the 'protected' bacteria indeed survived in greater numbers than the controls, at levels of great statistical significance."

Those results were also published in the *Star* tabloid, and a friend promptly sent me the clipping. I then called Worrall on the telephone (both she and I were living in Baltimore). When I introduced myself as a scientist who couldn't help but be a bit skeptical of her findings, she said, "Well, you're not a true scientist then. A scientist is supposed to be inquiring . . . but not with skepticism." Clearly, neither she nor the "scientists" with whom she worked had a clue as to the requisite role of skepticism in scientifically evaluating such alleged abilities.

Among the many other claims embraced by Dossey: Uri Geller's powers; voodoo and "distant hexing"; a "93-percent accurate" cold-reader; "Therapeutic Touch" (the New Age technique presently scandalizing the Colorado Board of Nursing); Robert Jahn's random-event generator experiments, which "transcend space [and] time" (and which have since been debunked in a parapsychology journal!); William Braud's experiments showing that "the mental images of one person can modify the activity of the autonomic nervous system of a distant person [who is] unaware that the attempt is being made"; and the biblical story (Joshua 10:12-14) of the sun standing still. "In addition to standing still, could time become 'disjointed,' such that the future would precede the present, or the present precede the past?" (Anecdote: An unidentified man was spontaneously cured of colon cancer through his minister's prayer before the prayer was even said!)

Having adopted the paranormal worldview as his standard of reference, Dossey's subchapter on "Why Do Drugs Work?" becomes almost understandable: "[To] doctors and scientists in general [and CSICOP Fellow Martin Gardner, who is named specifically] . . . the possibility that a physician's thoughts and beliefs could actually shape a patient's physiological responses [to a drug]—at a distance, even when the patient is unaware—is unthinkable. This has resulted in a virtual blindness in modern medicine

to these issues, and an unconscious drive to deny demonstrated facts."

A standard method of scientific experimentation is called into question: "It appears that double-blind studies can sometimes be steered in directions [by] the thoughts . . . of the experimenters. This might shed light on why skeptical experimenters appear unable to replicate the findings of . . . 'true believers' [who] seem more able to produce positive results." Nice try. But on those rare occasions when skeptics are invited in by "true believers" simply to review and tighten their notoriously lax controls, their positive results almost invariably evaporate.

There is no evidence in *Healing Words* that its author is familiar with the work of MacArthur Award-winner James Randi in exposing psi claims. He does quote CSICOP Fellow Ray Hyman, identified as "a well-known critic of parapsychology," but only to seemingly compliment the random-event generator experiments by Helmut Schmidt of the Mind Science Foundation: ". . . If there are flaws in his work, they are not the more obvious or common ones." The National Research Council's 1988 and 1991 reports on "Enhancing Human Performance," which reached conclusions highly critical of psi phenomena, are acknowledged, but are dismissed in a five-page Appendix as biased and unsupported by the evidence—the *real* evidence—found primarily in "parapsychology journals [which] have peer-review standards as rigorous as many medical journals." (But parapsychologists' peers are more parapsychologists; and look at what even the *Southern Medical Journal*'s "rigorous" peer-review process endorsed!)

Dossey refers unflatteringly to the "many New Age health 'authorities' who speak and write endlessly of the marvelous results one can expect if certain measures are aggressively undertaken. . . ." He seems to sincerely believe that he has little or nothing in common with them, since his entreaty is for the adoption, by doctor and patient alike, of an attitude of calm "prayerfulness," to open the gateway to the Divine and thus facilitate natural healing. I suspect that most of Dossey's readers will hear in his *Healing Words* a harmony of truth and majesty. Perhaps I am tone deaf, but all I hear is a cacophony of New Age psychobabble.

*Gary P. Posner, M.D., is an internist in Tampa, Florida, and founder of the Tampa Bay Skeptics. He is the author of the chapter on Noreen Renier in* Psychic Sleuths, *edited by Joe Nickell (Prometheus Books, 1994).*

# Quantum Animism

*Elemental Mind: Human Consciousness and the New Physics.* By Nick Herbert. Dutton, New York, 1993. 308 pp. Hardcover, $22.00.

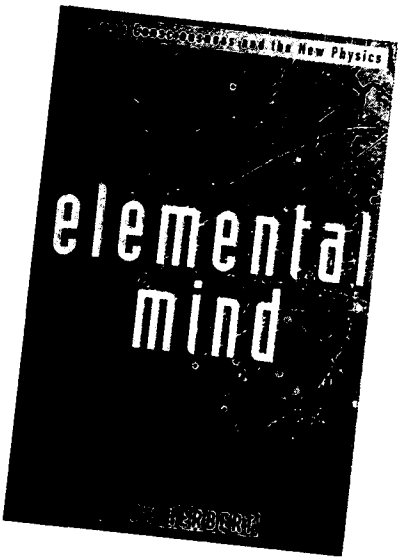
GERALD HUBER

Nick Herbert, the author of *Elemental Mind*, is a well-known popularizer and one of a small group of physicists who refuse to accept the fact that hidden variable theories, i.e., theories that try to reintroduce classical concepts into quantum mechanics, have been exper-

imentally invalidated. So one opens the book with the hope of finding out what could lead a trained physicist to adopt this maverick role.

Herbert announces at the start that he wishes to defend what he calls "quantum animism." He sees mind as a fundamental force of the physical world: all physical objects, down to the smallest subatomic particles, are permeated by the universal mind. This is so, he maintains, because a simple materialistic view of the universe cannot account for our sense of self, for our feeling of consciousness. How could nonconscious particles give rise to a conscious human being? He fails to mention that this philosophical chestnut has been convincingly demonstrated to be merely a pseudo-problem. But for Herbert, what is mere knowledge in comparison with his own gut feelings? He insists that "if present-day science finds itself powerless to validate my private insight into the real nature of things, so much the worse for science."

To counter the objection that someday the behavior of a completely determined computer program may be indistinguishable from that of a conscious human, he remarks: "It seems to me that no conceivable robotic behavior could ever prove beyond doubt that the robot actually possessed insides" (p. 9). He agrees that this leads to the problem of solipsism, i.e., that according to the same subjective criterion none of Herbert's fellow humans can have consciousness either. However, he shows no interest in pursuing this matter further. And the science of psychology doesn't fare much better than the rest of the human race. He agrees that behaviorism is both falsifiable and also uncontradicted, but his own consciousness apparently informs him that it is "doomed from the outside."




After having stated this point of view he devotes Chapter 2 to describing models of human perception. The quality of the material presented is uneven, ranging from experimentally verified remarks about color perception to something that he calls "the inner-space emotion map." He goes on to devote Chapter 3 to brain research, and there he gives a fairly accurate overview. Chapter 4, on the other hand, is a tribute to the philosophy of James Culbertson. Herbert freely admits that Culbertson is ignored by mainstream scientists, but does not waste time discussing why this is so. Instead he assures us that the robots of the future—who are expected to possess consciousness—will worship Culbertson's books as sacred texts.

Culbertson appeals to the fact that a moving particle in three-dimensional space can be imagined as a line in four-dimensional space-time in order to claim that such lines can be conscious of one another and that therefore the physical world is animate. Culbertson thought that this assertion amounted to a falsifiable theory and suggested three tests: (1) build a "clear-loop link," with which you can gain direct evidence of the consciousness of other

beings, if they possess any; (2) construct a "Culbertson conscious computer" and show that it is superior to computers that perform similarly but are unconscious; and (3) produce a "Z-experience" by attaching a human mind to a Z-network by means of a clear-loop link.

With the same logic one could also claim that the assertion that invisible, ethereal dragons exist is a scientific theory, because one can do an experiment to test it: simply build an invisible-ethereal-dragon detector and go out and see if they are there. Nevertheless, Herbert is fascinated by the fact that Culbertson's theory might be able to explain why consciousness evolved: he thinks that it allows space-time to be used as a superhard disk in order to store information. He does mention that there are also more conventional theories to explain the evolution of consciousness, but he does not get around to comparing them with Culbertson's ideas.

After returning from the fourth dimension, Herbert turns his attention to quantum mechanics and commits a string of familiar subjective blunders. He confuses the term *observation*, which has a very special meaning in quantum mechanics, with the everyday notion of "looking at" something. He then goes on to claim that it has been shown experimentally that nature is nonlocal, that present quantum theory is also nonlocal, that any possible successor of quantum mechanics would have to be nonlocal as well, that quantum objects possess no attributes of their own (it would be correct to say: "possess no *classical* attributes"), that quantum theory predicts that cats can be both alive and dead at the same time, that there is a quantum measurement problem that puzzles physicists, who are helpless to solve it, and so on. In short, he presents the usual list of errors committed by the subjectivists in their "interpretations" of quantum mechanics.

He inconclusively reviews a number of other fringe theories about mind and quantum mechanics, among them those of Eccles and Penrose, without indicating where he stands on the issue, and he ends by calling attention to the striking similarities between his ideas about "inner awareness" and the Roman Catholic doctrine of transubstantiation (p. 271). I could hardly disagree.

Of special interest to *SI* readers will be Herbert's treatment of alleged parapsychological effects. He feels that science is simply too young and naive to be allowed to pass judgment on matters like this, which it is not yet in a position to understand. On the other hand, he is impressed no end by the "research" on a German poltergeist, the random-number generator experiments by parapsychologists Helmut Schmidt and Robert Jahn, a study on the efficiency of prayer, and one on the "I-feel-I'm-being-stared-at" effect. He sees great prospects for such research but cautions that it must be reliably repeatable. One wonders if he has noticed that parapsychologists have tried for more than a hundred years to do exactly this—without being able to find a reproducible experiment that would indicate the existence of anything paranormal. He cites exactly one skeptical argument, which he refutes correctly. He points to the fact that the success of casinos does not contradict psychokinesis, because the odds there are stacked against the gambler to such an extent that even if a small psychic effect did exist it would not enable the player to win. Although Herbert hits this straw man, he misses the real point nevertheless, because independent of this bias problem there is still no evidence for psi in studies of lot-

teries—not even a small statistical effect.

Typical of the inconclusive, anecdotal tone of much of Herbert's book is his mention of how he connected a random-number generator to a typewriter in order to transmit messages from the dead. He is impressed by the fact that after the typewriter wrote "BY JUNG," it turned out that a student had a book by Jung in his pocket. And at a meditation-and-LSD party to call up the ghost of Houdini, a malfunctioning printer yielded him a string of letters that he interpreted as a humorous sign from Nature's higher dimensions. Generously, he leaves open the possibility that both of these might be due only to coincidence and does not insist that they constitute definite proof of either psychic ability or the hereafter. So one is left wondering why he mentioned them at all.

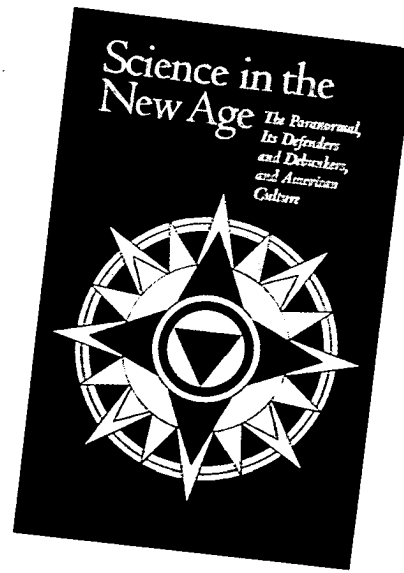
Sometimes physicists write books about philosophy. And sometimes these turn out to be of considerable insight, as is the case with the works of the Austrian physicist and philosopher Ludwig Boltzman. Here this is not the case.

*Gerald Huber is a founding member of GWUP, the German skeptics group, and a longtime critic of parapsychology.*

# Deconstructing Skepticism

*Science in the New Age: The Paranormal, Its Defenders and Debunkers, and American Culture.* By David J. Hess. University of Wisconsin Press, Madison, Wis., 1993. 243 pp. Paper, $17.95.

LEE LOEVINGER




The era known as "the sixties" began with the inauguration of John F. Kennedy as president in 1961 and probably ended with the defeat of George McGovern in the fall of 1972. It is notable for the coming of age of the "baby boom" generation and the development of a counterculture that was more counter than culture. Remnants or echoes of the sixties remain with us, however.

One of the more esoteric legacies of the sixties is a philosophy known as "deconstruction," initiated by Jacques Derrida, an Algerian Frenchman, and expressed mainly through a school of literary criticism. A basic tenet of deconstruction is that there is no such thing as metaphysical

certainty and that all logical dichotomies are false, since each side always rests upon assumptions or suppositions that are identical to those of its opposite. The term does not appear in *Webster's Third,* but the *Random House Dictionary of the English Language* (2nd ed., 1987) defines deconstruction as a philosophical movement "that questions all traditional assumptions about the ability of language to represent reality and emphasizes that a text has no stable reference or identification because words essentially only refer to other words and therefore a reader must approach a text by eliminating any metaphysical or ethnocentric assumptions through an active role of defining meaning, sometimes by a reliance on new word construction, etymology, puns and other word play." The *Encyclopaedia Britannica* (1993) observes that this undermines a belief in reason and rationality, and drily notes that deconstruction remains "somewhat controversial."

David Hess's book *Science in the New Age* is a good example of deconstruction in action. Hess claims that the topic of the book, in one sense, is "the universal problem of the dialogue between science and religion," with a focus on the segment of the American population "that contests the reality of phenomena known as 'paranormal.' " He claims that he writes "primarily for other scholars" but he writes so that the book is also accessible to interested nonexperts. The alleged scholarly nature of this book (which is asserted several times) appears to rest on the fact that most of the text consists of summaries or discussions of what others have written on the several topics addressed. I have not attempted to count the references in the text, but the number must be enormous. The appended bibliography is 25 pages long and lists more than 300 names. This includes those of about a dozen who are affiliated with the Committee for the Scientific Investigation of Claims of the Paranormal and a few who have written classics, such as Vannevar Bush, Thomas Kuhn, and C. P. Snow. All the rest seem to be authors of New Age or paranormal books or articles.

Despite, or perhaps because of, this skewed selection, I found the book quite informative. I have been reading books and periodicals on science since the end of World War II, and I did not have any idea of the extent of the literature of superstition. The most interesting aspect of the viewpoint presented here is the thesis that the New Age, parapsychology, and skepticism are three cultures that are, at bottom, aspects of a single "paraculture." In accordance with this approach, Hess purports to describe each of these cultures in what is intended to be a scholarly manner.

From both the title and the text it seems that the New Age is the author's favorite among his three cultures. The book begins with a flattering recital of the many manifestations included within the New Age movement: past-lives therapists, crystal healers, earth goddesses, lost civilizations, mantras, gurus, Harmonic Convergence, shamanic voyages, Hollywood ghosts, California channelers, natural medicine, pagan rituals, and Shirley MacLaine. The New Age movement is a "reaction to the defeats of the political aspirations of the 1960s," and the New Agers, who might best be described as "heirs to the hippies," now are articulating alternative spiritual visions and also "expressing the dilemmas of the current social order and attempting to define alternatives to that order." New Agers are skeptics in their own right who are skeptical

"not only of the demands of religious faith but also of the promises made to them by the corporate world, official science, and the medical establishment." Nevertheless, as the movement sheds some of the most scientifically questionable beliefs and practices, it is being absorbed into the mainstream of American culture.

In both the author's affection and logical ordering, parapsychologists are located somewhere between New Agers and skeptics. Parapsychologists are "heterodox scientists" who attempt to win acceptance within the orthodox academy but are engaged in the study of paranormal phenomena, such as psychokinesis, extrasensory perception, telepathy, clairvoyance, and precognition. Within the field of parapsychology there is a division between the exponents of quantitative, experimental, laboratory-based studies and the supporters of case histories and field methods known as "spontaneous case research." While some parapsychologists do both kinds of work, there is a tendency for them to fall into one or the other camp. However, as Hess observes in a discussion of gender in the social construction of boundaries between fields (an important and recurring subject in his analysis), "the lab is foreign to the paranormal," which occurs in the home and is an affair of the heart, of family ties, and frequently of mothers, daughters, and children. The president of the Parapsychological Association is reported to have argued that the experimental method has been a failure in the field of parapsychology.

While those in each of the postulated cultural groups see themselves as skeptical of the claims of other groups, "there is another, more strident form of skepticism" that is identified with the SKEPTICAL INQUIRER and its readers and scientists and others sympathetic to CSICOP. Thus CSICOP and its allies often speak "in the idiom of journalistic muckraking." In an endnote Hess credits himself with forbearance in not calling this group "hostile critics." Such skeptics, he says, sometimes engage in a "kind of religious zeal to defend a materialistic and atheistic worldview that smacks of what has been called 'scientific fundamentalism' or 'irrational rationalism.' " Whether skeptics are debunking or merely attacking on an intellectual level, he maintains that their writing reflects a confrontational and aggressive approach to the paranormal. To Hess this shows that skepticism is a very masculine discourse—indeed, a predominantly male movement. In contrast, many of the leaders of the New Age movement are women—although parapsychology has been dominated by men. This is consistent with the observation that in Western society the values associated with masculinity—intelligence, logic, objectivity, independence, and risk-taking—tend to correspond to those associated with the "hard" sciences, as opposed to the "soft" fields of what Hess calls the "human sciences" (usually known as social sciences) and the arts.

Although "science" appears in the title of this book, the text is about as scientific as a review of current motion pictures by your local movie critic. As one clue, there isn't a single quantitative datum in the whole book. However, there is an entire chapter devoted to a review of some of the most popular movies of the 1970s and 1980s portraying ghosts, haunted houses, or possession by spirits—including identification of the actors and actresses playing important roles in each. This is said to provide a "check on the analysis presented in the preceding chapters" and to show that Hollywood is part of the "emergent

paraculture." The transition in movie mythology over the years is said to reflect the change in popular imagination from the dark world of the occult, with its emphasis on Faustian forces and magical powers, to "the bright light of the New Age, with its emphasis on spirituality and self-development." Those interested in a synopsis of the movie plots may read the book. For this review it is sufficient to report that the author states, with obvious satisfaction: "One figure, however, does tend to get sacrificed in the Hollywood movies: the skeptic, who is generally male and often associated with a higher position in the scales of social power and hierarchy. . . . As viewers, we sense a certain justice when the skeptic is sacrificed."

In the concluding chapter, Hess suggests what he considers the "practical implications" of his analysis. With respect to parapsychology, more efficient data-gathering still leaves the repeatable experiment an "elusive quarry," while generating psychological and sociological knowledge oriented toward clinical or public education is an achievable alternative. By moving in this direction, parapsychologists would also be moving toward a ground that could be shared with a "more sophisticated skepticism." Bluntly put, it is suggested that parapsychologists should abandon the search for "evidentiality" (i.e., scientific data or proof), and skeptics should abandon "debunking" (i.e., asking for scientific data or proof) and then "both sides might be able to find a middle ground on which they study paranormal beliefs and practices."

Despite its lack of lucidity, and sometimes coherence, in exposition, I found this book educational. I am now convinced that the dogma of irrationality is vastly stronger and more widespread than I had ever imagined it. It is not, as I had once thought, merely a social or professional oddity. If the beliefs espoused by Hess are half as popular and widespread as he claims, then they are nothing less than the intellectual counterpart of the drug culture that is pervading and corrupting our cities.

*Lee Loevinger is a Washington, D.C., attorney with a degree in psychology. He frequently reviews books on scientific subjects.*

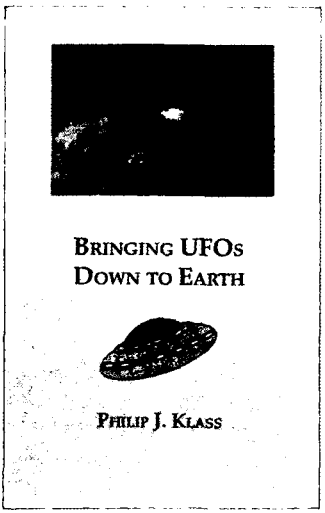
## Poisoning the Intellectual Cohesion

. . . The proliferation of distortions and exaggerations about science, of tall tales and imprecations, threatens to poison the intellectual cohesion necessary for a university to work as anything other than a collection of fiefdoms, trying to avoid each other's concerns—and students—as much as possible.

—Paul R. Gross and Norman Levitt, *High Superstition: The Academic Left and Its Quarrels with Science* (Johns Hopkins University Press, Baltimore, 1994 [p. 7])

# New Books

**Bringing UFOs Down to Earth. Philip J. Klass.** CSICOP, P.O. Box 703, Buffalo, NY 14226-0703, 1994. 26 pp. $2.50, paper. (Originally commissioned by the Smithsonian National Air and Space Museum.) Informative,




well-written, illustrated booklet for teenagers interested in reports of UFOs. With many short case studies and anecdotes, it provides a gentle introduction to the scientific approach to examining UFO claims critically.

**The General Pattern of the Scientific Method, 2nd ed. Norman W. Edmund.** Norman W. Edmund, 407 Northeast Third Ave., Ft. Lauderdale, FL 33301-3233, 1994. 47 pp. Paper. Single copy $3.00, bulk $0.85. An illustrated guide to the scientific method, for students, by the founder of the Edmund Scientific Co. Edmund provides handy short sections on such things as curious observation, defining a problem, searching for evidence, generating creative and logical solutions, evaluating the evidence, forming a hypothesis, challenging the hypothesis, reaching a conclusion, suspending judgment, and taking action. Ends with a discussion of thinking skills, methods, and processes.

**Higher Superstition: The Academic Left and Its Quarrels with Science. Paul R. Gross and Norman Levitt.** Johns Hopkins University Press, Baltimore, 1994. 328 pp. $25.95 hardcover. Scientists Paul Gross and Norman Levitt raise serious questions about the growing criticism of science by humanists and social scientists on the "academic left." They warn that principles and practices that underlie 300 years of scientific achievement have come under attack by literary theorists who "deconstruct" scientific texts, radical feminists who condemn scientific "patriarchy," and other scholars who have little actual knowledge of science. They examine examples of "science bashing" coming from an array of viewpoints in academia, including postmodernism, radical feminism, environmentalism, multiculturalism, and AIDS activism. They argue that the long-term effects on science education and public judgment of scientific issues may be far more serious than the "political correctness" wars now being waged on university campuses.

**Psychic Sleuths. Edited by Joe Nickell.** Prometheus Books, Buffalo, NY 14228-2197, 1994. 251 pp. $24.95 hardcover. Subtitled "ESP and Sensational Cases," this is a much-needed

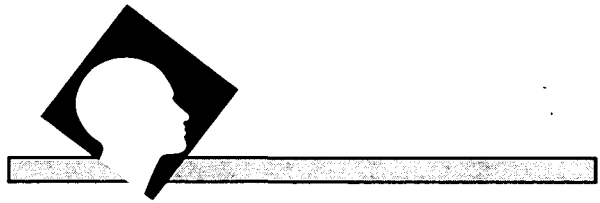
critical evaluation of persons who claim to help the police solve crimes by "psychic" powers. In each chapter an experienced researcher examines the claims of a particular "psychic": Henry Gordon examines Peter Hurkos; Stephen Peterson: Gerard Croiset; Michael R. Dennett: Dorothy Allison; Gary P. Posner: Noreen Renier; Jim Lippard: Bill Ward; Lee Roger Taylor, Jr., and Michael R. Dennett: Rosemarie Kerr; Kenneth L. Feder and Michael Alan Park: Phil Jordan; Ward Lucas: Greta Alexander. Nickell provides additional comments, and James Alcock provides additional analyses of psychic sleuths' claims in an afterword. Appendices include two evaluations of psychic claimants for the Los Angeles Police Department by Martin Reiser and colleagues, several articles from the SKEPTICAL INQUIRER, and a follow-up study by Mark Durm and Jane Ayers Sweat extending their survey of police departments' use of psychics (*SI*, Winter 1993), from large cities to small and medium-sized cities. Must reading for everyone who gets involved with this subject.

**Psychology, 2nd ed. Peter Gray.** Worth Publishers, Inc. 33 Irving Place, New York, NY 10003, 1994. 788 pp. $55.95 hardcover. Introductory psychology text by Boston College psychologist. Describes the main ideas of the field and the evidence behind them, and attempts to get students to join in thinking about behavior—its functions, causes, and mechanisms. "In writing the book," says Gray in the Preface, "I constantly imagined myself carrying on a dialogue with an inquiring, thinking, appropriately skeptical student."

**Toward a New Enlightenment. Paul Kurtz.** (Edited and with introductions by Vern L. Bullough and Timothy J. Madigan.) Transaction Publishers. Rutgers—The State University, New Brunswick, NJ 08903, 1994. 401 pp. $39.95 hardcover. A laudable compilation of essential writings (most never published in book form, some never published anywhere) of the activist philosopher, teacher, author, editor, and organizer Paul Kurtz (who founded CSICOP, *Free Inquiry* magazine, and Prometheus Books, to name just three of his intellectual offspring), whom the editors call "the dominant voice of secular humanism over the past thirty years." The writings, most dating since 1980 forward, focus on practical topics Kurtz has been concerned with throughout his life: ethics, politics, education, religion, science, and pseudoscience. (Of historical interest to our readers is his address "The Scientific Attitude vs. Anti-science and Pseudoscience" to the inaugural meeting of CSICOP, May 1, 1976, at SUNY-Buffalo.) "My main concern in my professional career has been to defend the methods of science and reason as applicable not only to narrow areas of scientific inquiry, but to all domains of human endeavor," Kurtz writes in the Preface. In a personal sketch in his Foreword, Bullough portrays Kurtz's exuberance, cheerfulness, and energy and says he is a "far more complicated and interesting" man than even his prodigious accomplishments indicate, a strong believer in maintaining friendships, and an outspoken and sophisticated defender of human and intellectual freedom.

*—Kendrick Frazier*

# Articles Of Note



**Brewin, Thurstan B. "Logic and Magic in Mainstream and Fringe Medicine."** *Journal of the Royal Society of Medicine,* 86:721-723, December 1993. Mentions three obvious reasons for the current boom in fringe medicine, then discusses a possible fourth: its appeal to that side of our nature that dislikes logic and prefers magic.

**Ellis, Bill. "The Highgate Cemetery Vampire Hunt: The Anglo-American Connection in Satanic Cult Lore."** *Folklore,* 104: 14-39, 1993. The practice—and fear—of witchcraft has made a comeback in Britain in the past hundred years. This article discusses the late-nineteenth-century Golden Dawn organization, 1950s police warnings, and a feud between rival occultists that ended up at the criminal courts of Old Bailey.

**Garlaschelli, Luigi, Franco Ramaccini, and Sergio Della Sala. "A 'Miracle' Diagnosis."** *Chemistry in Britain,* 30:123-125, February 1994. A more complete report of the authors' famous investigation, published in brief in *Nature* in 1991, advancing the hypothesis that the "blood" liquefaction observed regularly at a Naples cathedral is more likely due to the natural phenomenon of thixotropy. This is a property of certain gels (e.g., ketchup and mayonnaise) to become more fluid when disturbed and to resolidify when left to stand. All the compounds used in their reddish-brown FeO(OH) colloidal solution would also have been available in the fourteenth century, when the phial in question was sealed (no tests have ever been done to show it contains real blood).

**Gould, Stephen Jay, "The Persistently Flat Earth."** *Natural History,* March 1994, pp. 12-19. Essay points out that the most prominent of all prejudicial scientific stories emphasizing overly stark contrasts between the Middle Ages and the eras before and after—the supposed dark and medieval consensus for a flat earth—is entirely mythological.

**Greyson, Bruce. "Varieties of Near-Death Experience."** *Psychiatry,* 56 (4): 390-399, November 1993. The nature of near-death experiences varies depending on whether danger was expected (as in surgery) or was sudden (as in accidents). "Surrendering" versus "fighting" led to different kinds of experiences, as did coronary arrest.

**Herman, Daniel. "Science, Seance, and San Francisco: The Spiritualists' Phantom Fandango."** *The Californians,* 11(2): 18-37, 1994. A lengthy historical essay on spiritualism in San Francisco and its struggle with science. Contends that for nineteenth-century Americans, and especially San Franciscans, the advent of spiritualism, contrary to what one might think, helped usher in modernity by soothing anxieties about industrialization and other losses of individuality in a rational, scientific era.

**Langton, James. "Revealed: The Loch Ness Picture Hoax."** *Sunday Telegraph*

(London), March 13, 1994, pp. 1, 3. The article that revealed that the famous 1934 photograph by Col. Robert Wilson, M.D., had been hoaxed. See News and Comment, this issue.

**Lardner, Ring, Jr. "The Age of Reason, 1794-1994."** *The Nation*, February 21, 1994, pp. 232-233. Tagged "Uncommon Nonsense," Lardner simply lists "some of the strange things Americans believe 200 years after Thomas Paine published *The Age of Reason*. "None of them can meet the ordinary standards of proof required in a court of law or in an objective scholarly investigation. . . ." The 42-item list includes popular, pseudoscientific, paranormal, and religious myths.

**Mayor, Adrienne, and Michael Heaney. "Griffins and Arimaspeans."** *Folklore*, 104: 40-66, 1993. In the first of two related articles, Mayor hypothesizes that the griffin of mythology was inspired by fossilized skeletons of the dinosaur protoceratops, which have been found near the gold mines that griffins supposedly guarded. Heaney then proposes that the Arimaspeans—the tribe that supposedly fought the griffins—are a version of the "wildmen" legend that still lives on in Central Asia under the name "Almas."

**Miller, Kenneth R. "Life's Grand Design."** *Technology Review*, February/March 1994, pp. 24-32. A professor of biology at Brown University and author of a high-school biology textbook responds to the creationists' latest form of attack against evolution, their so-called "intelligent design theory." Miller shows how biology offers new evidence that organisms—far from springing into existence in full form from a grand designer's original blueprints—were cobbled together layer upon layer by "a tireless tinker called evolution."

**Rae, Stephen. "John Mack."** *New York Times Magazine*, March 20, 1994, pp. 30-33. Lively profile of the Harvard psychiatrist who thinks alien-abduction stories are true. Reports on his earlier explorations into psychoanalysis, EST, holotropic breathwork, Eastern philosophy, and shamanism. "Mack was predisposed to seeing entities," says the author, who also quotes Carl Sagan, Philip Klass, and several of Mack's Harvard psychiatry department colleagues. ("I wish he were doing something else. This is so off-base," says one.)

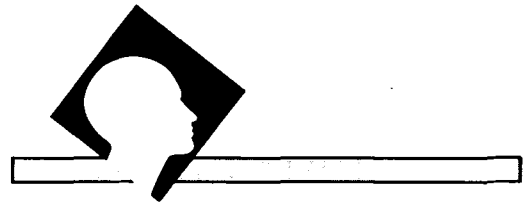
**Sengoopta, Chandak. "Rejuvenation and the Prolongation of Life: Science or Quackery?"** *Perspectives in Biology and Medicine*, 37: 55-66, Autumn 1993. Some of the leading scientists working with monkey glands and other rejuvenation techniques early in the century were not frauds in the usual sense but scientists pursuing what turned out to be a dead end.

**Verdoux, H., and M. Bourgeois. "A Partial Form of Lycanthropy with Hair Delusion in a Manic-Depressive Patient."** *British Journal of Psychology*, 163: 685-686, November 1993. A report on a patient who believed excessive hair was growing on his body, with some indications of thinking he was a werewolf.

**Young, Robert Vaughn. "Scientology from Inside Out."** *Quill*, 81 (9): 38-41, November/December 1993. A former public relations officer for L. Ron Hubbard's Scientology organization explains the systems they used to direct and misdirect reporters.

*—Kendrick Frazier and Robert Lopresti*

# Follow-Up



## *The Spectrum of the False Memory Debate*

G. W. LEA

As a clinical psychologist who has assessed or treated more than 175 sex offenders and the same number of sex-abuse victim survivors over the past 15 years, I have followed the False Memory Syndrome debate with particular interest. (See Martin Gardner, "The False Memory Syndrome," *SI*, Summer 1993, and subsequent letters to the editor and Gardner's response, Winter 1994.)

Indeed, there are any number of self-appointed "validators" around who seem to see it as their mission to uncritically accept or, in a number of cases, facilitate "memory" of sexual-abuse complaints. Over the past five years in particular I have been asked to evaluate such complaints, which often, although not always, arise in heated custody/access disputes. In one recent case, a two-and-a-half-year-old infant covered her doll in play therapy and pronounced it "dirty"; the play therapist suggested to the concerned mother that this type of conduct is indicative of child sexual abuse and, as the mother could identify no other person who had had access to the infant other than herself, accused her estranged husband of abusing his daughter. It was more than a year and a half before he was able to see his daughter without supervision.

In the same vein, a father whom I evaluated one year ago in a custody/access dispute involving alleged sexual abuse recently died of cardiac problems. After evaluating the parents and the five-year-old daughter I concluded that there was no basis for the complaint; the mother's intense alienation from the father was modeled by the daughter and, in spite of my repeated recommendations for access supported by court order, the girl refused to see her father.

Notwithstanding the above, Martin Gardner makes some remarks in his replies (Winter 1994, p. 214) that invite comment. He suggested that "a father capable of raping his four-year-old daughter betrays such psychotic behavior that it is almost impossible for there to be no other records of his mental illness." This is simply not the case. The vast majority of sex offenders, incest offenders in particular, have no criminal record and no documented record of mental-health disorders. Roughly half, however, have been sexually abused themselves (or at least that is what they report) and roughly 70 percent have been physically abused; roughly half are alcohol/drug dependent. The vast majority have come from familial and/or social backgrounds that are impoverished, i.e., one or both parents absent, alcoholic, abusive, etc.

More seriously, Gardner goes on to suggest that wives and other relatives seldom have reason to maintain a state of "denial." This, too, is at odds with both my experience and the literature. While many mothers of

children who are victims of incest do separate from the father at the time of the disclosure, a very substantial number do not. The child's mother and siblings know that to break the "silence" or "denial" is to put the father at risk of incarceration, job and financial loss, with the concomitant loss of status in the community and attendant shame, guilt, and so on, for other family members. Most assaults are accompanied by explicit or implicit threats of violence. In other cases, mixed feelings of affection, fear, and confusion relating to the meaning of genital stimulation and associated pleasure have maintained victim silence. It is not true, then, that family members seldom have reason to maintain a state of "denial."

Thirteen years ago I was asked to evaluate and treat a nearly four-year-old girl who had been apprehended from a heroin-addicted, sexually abusive mother. There was no question that this infant had been poorly treated; I counseled the girl and her father for about nine months with respect to her nightmares, enuresis, and sexual acting out. In 1992 the same father contacted me to speak with his then 15-year-old daughter as the girl's mother had contacted her by phone and asked for visitation. The girl had no recollection of the events that occurred during her infancy. When I spoke with her she exhibited a normal personal and social profile. She had no recollection of being counseled by me, nor did I expect her to. She was genuinely surprised when I told her that she had spoken to me 11 years earlier about "plastic willies and plastic winkies." This single case does not "prove" the issue of False Memory Syndrome one way or the other, but it does suggest that memories of abusive events prior to the age of four years (at least in this case) may be repressed.

Gardner adds that at times there may be a full confession. In my experience that is rare, certainly on the order of less than 5 percent of the time, and the "vigorous denials" he referred to may be genuine or false. Vigorous denials, therefore, are not probative one way or the other. To complicate things, victims often do love and admire the offender and in some cases find the dissonance so potent that they "split" the non-offending "good Daddy" who exists during the day from the offending "bad Daddy" who exists at night.

Both false-negatives and false-positives are serious matters when it comes to child sexual abuse complaints. I concur, then, with the statement of senior editor Mary Sykes Wylie in the *Family Therapy Networker* (September/October 1993) with respect to the false-memory debate:

> The truth doesn't lie somewhere in the mushy middle of the controversy, but all across the spectrum, from one extreme to the other. No possibility forecloses another contradictory possibility for somebody else. There could be innocent parents and guilty but amnesic parents and parents who engaged in some but not all of the abuse of which they are accused, and parents who are conscious perpetrators cynically using the controversy for their own ends. Similarly, there are adults who, in their own confusion and unhappiness, are remembering abuse that did not happen and adults who have truly suffered every form of sexual abuse from inappropriate looking and touching to molestation, to the most sadistic, horrifying, long-term trauma imaginable and unimaginable.

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# Confusion Over Delphi Silver-Futures Trials?

KEITH HARARY

I was glad to read Robert Sheaffer's attempt to clarify the details of the Delphi silver experiments and events surrounding them (*SI*, Psychic Vibrations, Winter 1994). Many people have experienced difficulty in sorting through the many misleading claims about Delphi. I am happy to present another brief attempt to clear up this confusion.

There are a number of factual errors in Sheaffer's comments about the Delphi work itself. He states, for example, that John White was the principal investor and that he turned a substantial profit. He also states that the investor lost much of his earlier profits following two incorrect predictions and lost all further interest in investing through Delphi. John White, however, was never involved in the Delphi work. *Anthony* White, one of three Delphi partners, was involved—but he was not the principal investor. The principal investor did not lose most of his earlier profits in the two unsuccessful trials. He also did not lose all further interest in Delphi following these trials.

Sheaffer also states that I suggested that the judges may have been thrown off the track in judging the first trial by a comment about the smell of roasted peanuts—which supposedly led them to select the San Francisco Zoo as the target. In fact, I actually pointed out in my published critique of the silver trials (*JASPR*, October 1992) that I do not recall ever having made such a statement—and that the manner in which Russell Targ reported the judging of this particular trial to the editors of Time-Life Books was inaccurate and misleading. For example, according to Targ's reported description, he found himself scrutinizing drawings that actually were roughly 30-to-40 miles away from him at the time. He later admitted, in response to my critique, that he had not scrutinized the drawings in question—contrary to what was reported. When asked to support his many other claims about the Delphi trials, Targ claimed that he had "lost" the data.

Sheaffer perceives contradictions where none exist. It is true that the first 12 trials in the Delphi series (if we include the pilots) led to correct predictions of future price movements in silver. It is also true that these were informal trials, with optional stopping and spontaneously varied probabilities of a hit, and that the success of these trials is therefore statistically meaningless. My discussion of the judging procedure used in the additional trial involving the golf course, incidentally, was intended merely to show that Targ's claims about supposed "displacement" are not supported by the data. Sheaffer seems to be suggesting that I would have had to have believed myself to be psychic (or actually been psychic) in order for the first 13 trials to have led to correct predictions. This is a mistaken assumption with which any qualified statistician would no doubt disagree.

Sheaffer also expresses skepticism about my stating that I have no further interest in using remote viewing as an investment strategy in playing the silver market. To this suggestion, I can only reply that I have turned down anyone who has ever approached me, since the Delphi trials were reported, proposing such a ven-

ture. In addition, when Targ used my name to promote his National ESP Laboratory, which involved the general public in making predictions about the market, I filed suit to prevent the use of my name in this manner. I believe this was the only responsible action I could have taken. I would not hesitate to take it again if my name were used to promote such activities. In my opinion, the Delphi trials represented a well-intentioned and potentially worthwhile effort, which was unfortunately sensationalized and made the subject of exaggerated and misleading claims.

As to my finally rejecting the "psychic" label, I do not understand why Sheaffer apparently finds this position difficult to comprehend. I have long-since perceived the terrible problems inherent in using such a label to describe any human being—and have written and lectured extensively about these problems. As to Scott Rogo's interesting statement—quoted in Sheaffer's column—that I ever claimed I could "leave my body," this is also incorrect. Out-of-body experiences, as I have often pointed out, are powerful *subjective* psychological phenomena that may be induced at will.

Finally, Sheaffer states that we will never know what *really* happened in the Delphi trials. This is also not correct. Although Targ now claims to have "lost" the data, the original report on this work was published long ago (*Psi Research*, 4, pp. 79-88, 1985). The critical point made in my recently published discussion of the silver trials is that Targ's recent descriptions of the Delphi series do not correspond with the published report that he himself previously coauthored. Most significant, he has frequently reported (with inconsistent details) a subsequent series of nine formal trials that did not actually take place—and that did not appear in the original report. Targ has subsequently been unable to support this claim with any hard data. I hope that SKEPTICAL INQUIRER readers will take the time to read this critique and learn the true facts of the case. I would be happy to provide a reprint to anyone who wishes to do so.

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# Forum

## *The Scalp-Tinglin', Mind-Blowin', Eye-Poppin', Heart-Wrenchin', Stomach-Churnin', Foot-Stumpin', Great Big Doodley Science Show!!!*

RALPH ESTLING

Let us now lambaste infamous men, those who call themselves scientists and perhaps honestly believe themselves to be scientists and indeed have the post-nominals to show it, but who are *not* scientists.

Science is, when all's said and done, only the name we give to what it is scientists do and think; and scientists, same as the rest of us, are a mixed bag, especially when it comes to doing and thinking. They're supposed to love truth for its own sake and to seek it at all costs. No doubt all of them think they do, but whether they really do and to what extent is one of those things that doesn't mean much when applied with broad strokes of a tar brush. It only has true meaning when applied to this or that individual, and I'm carefully avoiding individuals and just grousing generally.

Dogma, certainty without evidence, is the great menace, the great nemesis, of science, of art, of religion, of politics, of economics, of philosophy, of how to write articles for magazines, of just about everything that we do and think. Dogma is a great ossifier of mind and of imagination, of all creativity. It is an integral part of human nature, being our laziness's answer to the strain that goes with thinking. The only qualification in science's favor—not that it doesn't have dogmas, because it certainly does, loads of them—is that its dogmas tend to collapse in a heap a bit more readily than those you find in art, religion, politics, and the rest. If you have a scientific dogma and it's discovered that according to it $1 + 1 \neq 2$, this often means you're in trouble. (Not always, as quantum theory shows us.) Whereas in politics you can hold on to your dogma on that basis for decades, in religion for centuries. In psychoanalysis, $1 + 1 \neq 2$ is a genuine advantage.

All constructs of human beings have this problem, i.e., they're made by humans, with all that this entails. Science is just another such construct, humanity's latest and, some of us think, best. But *best* might just mean "not as bad as all the rest"; it may not necessarily be all that great intrinsically. I think we had better adopt this relative view on the greatness of science if we're to avoid winding up as total pessimists and misanthropes and, of course, antiscience. If we don't expect or demand too much from our fellow mortals, including our fellow scientists, we're less likely to become as disappointed and infuriated as we

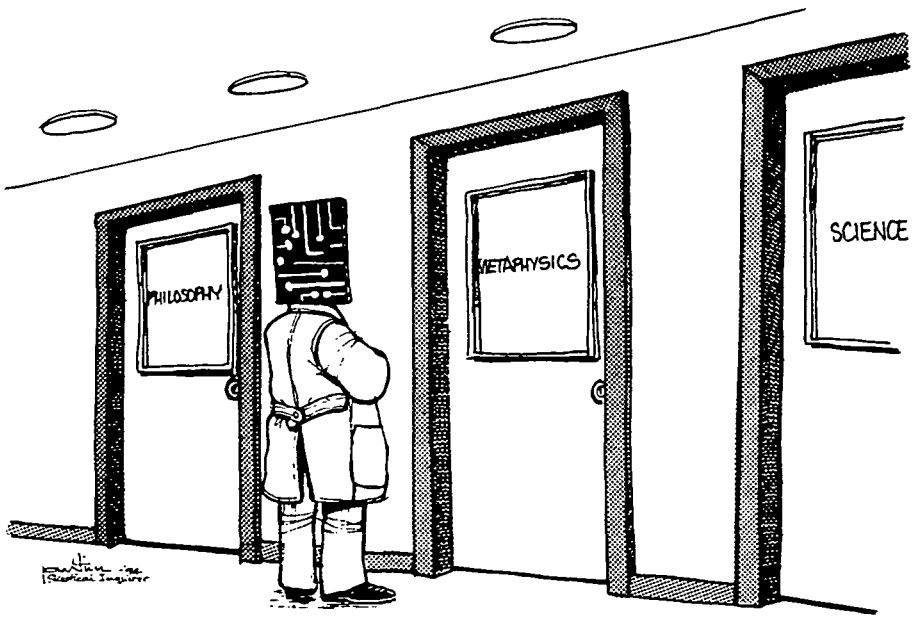
*"The problem emerges in science when scientists leave the realm of science and enter that of philosophy and metaphysics, too often grandiose names for mere personal opinion, untrammeled by empirical evidence or logical analysis, and wearing the mask of deep wisdom."*

might otherwise. Here endeth the first lesson.

The thing is, we do demand more, a lot more, from scientists. They are, after all, the appointed, sometimes the self-appointed, guardians at the gates of reason. Many are reasonable—wonderfully, marvelously so, as was Richard Feynman. But there are others.

There are scientists, often but not invariably cosmologists or quantum theorists, who can take ideas, stand them on their heads, and twirl them around like tops, till they hum and thrum, a blur of fury, a million mad mosquitoes locked in a jam jar, thirsting for blood, remembering the stagnant pools of home. We follow the toy train of their thought along its trembly tracks, through the cardboard tunnels, over the shuddering tin bridges, past the plastic stations, to where it emerges, at the point it began its journey, circumambulent in argument, terminus and starting point all one, smoke, steam, vapor pouring out—but nothing else. For these are the scientific myth-makers.

Myth-making, metaphysics, mys-



tery, magic, speculation without a trace-element of proof—this is the hallmark of the self-indulgent, undisciplined mind, in science or anything else. If you steel your brain in the methods of logical deduction, empirical observation, and rational analysis, this clearly limits that brain's sphere of operation, erects boundaries, conditions, restrictions, no-go areas. But, as Robert Frost tells us, "Something there is that doesn't love a wall." The trouble is, without these walls of reason we are back with the shamans in their reindeer skins and antlers, dancing 'round the fire, chanting the ritual spells, the sacred, holy words that will (or so we hope) frighten away the evil spirits of the night and the cold. The fire gives warmth and, though its shadows cast on the walls of the cave are menacing and troubling, it makes the cave bears and sabertooths keep their distance, and the tales the shaman tells are lively, and the dancing invigorating. But we must forgo all this. For we have been here before and we have left this place long ago and moved on, and we should have no desire to go back.

Many, even with Ph.D.s after their names, have not left this strange, dark land and do not want to. Some are scientists. Many of these are theorists in physics; there are fewer of them in the life sciences. The reason for this is not hard to come by. When scientists are on the borderlands, the wild fringe areas, of knowledge, speculation creeps in on little cat feet and sits there, in the doorway, licking its lips.

The problem emerges in science when scientists leave the realm of science and enter that of philosophy and metaphysics, too often grandiose names for mere personal opinion, untrammeled by empirical evidence or logical analysis, and wearing the mask of deep wisdom.

And so they conjure us an entire Cosmos, or myriads of cosmoses, suddenly, inexplicably, causelessly leaping into being out of—out of Nothing Whatsoever, for no reason at all, and thereafter expanding faster than light into more Nothing Whatever. And so cosmologists have given us Creation *ex nihilo*, Everything out of Nothing, our own, our very own scientifically authenticated Genesis-come-lately. And at the instant of this Creation, they inform us, almost parenthetically, the universe possessed the interesting attributes of Infinite Temperature, Infinite Density, and Infinitesimal Volume, a rather gripping state of affairs, as well as something of a sudden and dramatic change from Nothing Whatsoever. They then intone equations and other ritual mathematical formulae and look upon it and pronounce it good.

I do not think that what these cosmologists, these quantum theorists, these universe-makers, are doing is science. I can't help feeling that universes are notoriously disinclined to spring into being, ready-made, out of nothing. Even if Edward Tryon (ah, a name at last!) has written that "our Universe is simply one of those things which happen from time to time."

We seem instinctively to feel that the natural condition is nonexistence, nothingness. It is a deep, pervasive belief in all human cultures and mythologies, as is the need for a Beginning in and of Time. But like many human needs, like gods who care for us so deeply and passionately they create universes for us and then carefully nurture and tend them for our benefit, there is no overriding, inescapable requirement for them, and no compelling certainty. Perhaps, although we have the word of many famous scientists for it, our universe is not simply one of those things that happen from time to time.

But perhaps *we* are. □

# First-Person Report: A Skeptic's Near-Death Experience

LAURA DARLENE LANSBERRY

*The following letter, from a reader in Tucson, Arizona, was written in late December 1993, a few days after she underwent the extraordinary experience she describes. We think her understanding of this experience is rare, important, and worth sharing.*—EDITOR

I hadn't expected to ever write a letter or article for the SKEPTICAL INQUIRER! I find the authors, writers, and editor do a marvelous job as a general rule. With that said, I respectfully ask for a full hearing on a subject that is somewhat controversial: NDE, near-death experience. I ask for a full hearing because I have something to say that, if not read to the end, will sound a bit as though I am a believer in the tomfoolery of many of those who speak on NDEs.

I died a few days ago. I was on the operating table, conscious and aware, as is the procedure in angioplasty, and all of a sudden I felt incredibly sleepy—sleepier and sleepier until I faded out entirely. What happened on the table was that my heart fibrillated, stopped, and then I passed on to oblivion. An eternity later, which was only a minute or so in real time, I came back.

What I experienced, as a skeptic and one who doesn't believe in the survival of personal identity, was awesome. Looking back on it I realize that as my conscious brain had slowly closed down, the surface gave up its energy before the lower layers did, and it gave me the impression that I was starting down a long tunnel, a tunnel that closed upon me even as oblivion embraced me.

Then, totally unbeknownst to me and without any sensation of pain, the doctor hit me with the paddles. From out of the darkness, void and dead, the tunnel reappeared, and at the end I could see a light. I struggled toward the light, and the tunnel pushed back and back until I heard the doctor say: "Laura, we lost you, but it's all right now. We brought you back!" Opening my eyes I realized the bright light had been the bright light of the operating room. It was only then that I understood I had died. Lethargic, I didn't care; I almost wished I had been left alone.

I can understand how those who talk of NDEs and believe in some mystical power might misconstrue this happenstance; I cannot do the same. But I did find it moving and powerful, and I have recognized that the only thing that is important in life is what we do here and now. We won't be getting another chance! What we accomplish now, what we do in this life, is all that is important. We take nothing to the grave with us!

I also realize this is as equally subjective as the experience of any zealous believer, and I make no claim other than that I am a person of integrity and have told of my experience as accurately as I am able. To the best of my knowledge, I am the first and only skeptic to experience the phenomenon of NDE and write of it in objective terms, not finding in the experience anything to dissuade me of my natural and healthy skepticism.

Pragmatically, the experience is not a brain in trauma as has been suggested; it is the experience of a brain passing away. There was no trauma

for the brain. The mere passage of the brain seems to take place in layers as the outer neurotransmitters fail to fire and create the tunnel effect. When the tunnel closes, we are dead. Now, for those of us lucky enough to come back, a reversed tunnel effect takes place as the neurotransmitters begin to fire again. The light, of course, is the brightness of any room seen by the eyes, through closed eyelids, that had ceased to register any light at all. A bit unnerving, yes, but spooky, no.

I don't wish to imply by this letter that my views on life after death are necessarily correct. I am not debunking anyone's faith or belief system. I wish only to report my particular NDE experience and relate that, for me, it was merely a physiological phenomenon attending the experience of death, nothing more.

*Readers interested in more insights that help explain the near-death experience in naturalistic terms may wish to read Susan Blackmore's article "Near-Death Experiences: In or Out of the Body?" in our Fall 1991 issue.* □

## This Messy and Personal Side of Science

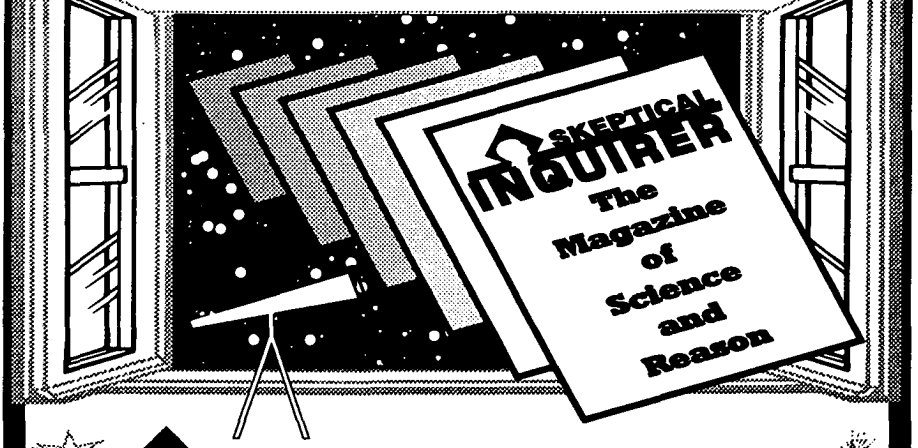
After conclusions are firmly in place, a logical pathway can be traced from data through principles of reasoning to results and new theories—context of justification. But scientists who make the discovery rarely follow the optimal pathway of subsequent logical reconstruction. Scientists reach conclusions for the damnedest of reasons: intuitions, guesses, redirections after wild goose chases, all combined with a dollop of rigorous observation and logical reasoning to be sure—context of discovery.

This messy and personal side of science should not be disparaged or covered up by scientists for two major reasons. First, scientists should proudly show this human face to display their kinship with all other modes of creative human thought. (The myth of a separate mode based on rigorous objectivity and arcane, largely mathematical knowledge, vouchsafed only to the initiated, may provide some immediate benefits in bamboozling a public to regard us as a new priesthood, but must ultimately prove harmful in erecting barriers to truly friendly understanding and in falsely persuading so many students that science lies beyond their capabilities.)

—Stephen Jay Gould, "In the Mind of the Beholder," *Natural History*, February 1994

# *The universe is not the only thing that is*

# EXPANDING

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# Letters to the Editor

## *The new skepticism*

In "The New Skepticism" (*SI*, Winter 1994), Paul Kurtz makes a credible argument for his "skeptical inquiry" approach to knowledge of the physical world. However, his argument for its use in matters of ethics and morality seems quite weak.

Kurtz notes that for nihilistic skepticism: "Complete cultural relativity is the only option for this kind of skepticism. Principles of justice are simply related to the power or the social contract; there are no normative standards common to all social systems." In an attempt to parallel his argument defending the body of knowledge developed by the physical sciences, he responds to the ethical conclusions of nihilistic skepticism (and other hard, rational forms of skepticism) with: "We have long since transcended cultural relativism in values and norms and are beginning to see the emergence of a global society. Thus extreme cultural subjectivity is no longer valid, for there is a basis for transcultural values."

While I might agree that the global society has made "Morality is a matter of geography" invalid, it still holds that values may change over time such that "Morality is a matter of temporality." For example, if in one hundred years, due to population pressures, it is universally accepted that people who have more than two children should be put to death and their children sold into slavery, would that be moral? Unlike physical laws, which remain stable over time, human values change. There is no parallel between our progressive understanding of natural sciences and our concept of ethical behavior.

Dan Culbertson
Edgewater, Fla.

## *The why of why?*

In the second paragraph of William Grey's fine article on "Philosophy and the Paranormal" (*SI*, Winter 1994), he states that "scientific inquiry provides us with a body of knowledge that purports to explain why things happen as they do: why rivers flow, why plants grow. . . ." Unless he defines why as meaning the mechanism whereby natural events occur, I must take issue with his use of the word *why*. The use of the word *why* has teleological implications. Attempting to ascribe purpose to natural phenomena could be intellectually dangerous. Rarely, in science, do we ask the question *why*. *Why?* tends to be a philosophical, even theological, question to which one could rightly, but unscientifically, answer, "God made it so."

Generally, in science, we ask questions designed to help elucidate either the nature of something or the underlying causes of a phenomenon, i.e., What is the nature of . . . ? How does . . . work? What is the mechanism whereby . . . ?

Sheldon F. Gottlieb
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University of South Alabama
Mobile, Ala.

## *EMF and cancer scares*

As a longtime subscriber to the SKEPTICAL INQUIRER I was thoroughly disappointed by the article "Electromagnetic Field Cancer Scares" by Sid Deutsch (Winter 1994). Deutsch managed to provide an oversimplified—I would say simplistic—and misleading review of a very complicated subject.

The following is an example of a

grossly misleading statement in Deutsch's article when he discusses *60 Hz* magnetic fields:

> The earth's magnetic field has a strength about 50 μT. Nobody has suggested that the earth's field causes cancer, and neither is it reasonable to propose that a 200 μT field should be viewed with suspicion. . . . The field of a refrigerator bar magnet can be far greater than 200 μT.

Deutsch should know that an *alternating* 60 Hz magnetic field can do things that a *static* field, such as that of the earth or of a bar magnet, cannot. In particular, a 60 Hz field—as opposed to a static field—can induce electric fields and currents into a stationary object. Furthermore, 60 Hz extremely low frequency (ELF) *magnetic* fields will penetrate the human or animal body virtually unaltered and therefore will induce *within* the body *electric* fields, providing a means for getting an ELF electric field into the body, which cannot be done very well "directly" by applying one from the outside. . . ..

Deutsch states that to decide whether 60 Hz fields can produce cancer "we perform controlled experiments; and epidemiological surveys of people who live near power lines." After ignoring many of the controlled laboratory experiments when he advocates his "commonsense position of skeptical scientists," he apparently also chooses to ignore the results of epidemiological research. Although much of that research is still controversial—epidemological surveys are difficult and almost always open to different interpretations—the most recent and probably most carefully done study, "Magnetic Fields and Cancer in Children Residing near Swedish High Voltage Power Lines," by M. Feychting and A. Ahlbom (*American Journal of Epidemiology*, 13: 467-481, 1993), concludes:

> Overall, it seems that the results of this study provide more support for an association between magnetic fields and childhood leukemia than against it. What characteristic of the magnetic field would be involved remains unclear, although some indications might be derived from the fact that transmission lines were the major exposure source in this study. Transmission line fields are homogeneous and rather stable, and transients are uncommon. Thus the results of this study would argue against transients or fast on-off switches being the relevant characteristic. Rather these results would support a characteristic such as the time-weighted average.

Based on this study and other research, the Swedish equivalent of a combination of EPA and OSHA has formulated the following policy (*SSI Newsletter*, 1993):

> The Swedish Radiation Protection Institute (SSI) takes it for granted there is scientific evidence for the hypothesis about a connection between certain types of cancer and exposure to such low-frequency magnetic fields which are found close to high voltage power lines, electric equipment, etc. There are, however, also some facts that contradict this hypothesis. SSI judges that the total knowledge now available speaks in favour of taking steps to reduce the fields.

Charles Polk
Professor Emeritus of
Electrical Engineering
University of Rhode Island
Kingston, R.I.
(Former President (1988/89) of
the Biolectromagnetics Society)

I applaud Sid Deutch's informative article and *SI*'s increasing focus on fringe science. These areas are as worthy of skeptics' attention as ghosts and goblins are.

A study of power-line magnetic fields and cancer by the Swedish investigators Maria Feychting and Anders Ahlbom received great attention in the press last year because it claimed to have found a positive relation between increasing field strength and leukemia. In fact, this study of 690 cancer cases in a population

of 436,503 Swedes living within 300 meters of high-voltage lines found no statistically significant increase in overall cancer risks for children or leukemia risks for adults with proximity to these lines. (The field strength goes from high to low as one goes from 0 to 300 meters from a line.)

The study did place six cases of childhood leukemia in the high-field category, when the expected number was two. This led the authors to assign a childhood leukemia risk of between 1.0 and 6.3 (confidence level 95%) for high fields ( $> 0.2\ \mu T$). And even this small effect mysteriously vanished for children living in apartments (2 high-field cases/2 expected) or who had lived at the same address since birth (1 high-field case/1 expected).

This "sheep and goat" effect failed to alert the authors to any flaw in their methodology, which uses calculated rather than measured fields because only the calculated fields give an association with leukemia. Studies like this one are in great need of skeptical analysis, because they are widely believed by credulous journalists and politicians.

Alan Cromer
Department of Physics
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Boston, Mass.

In "Electromagnetic Field Cancer Scares," Sid Deutsch attempts to assure the reader that concerns over possible health effects from low-level environmental electromagnetic effects are the product of ignorant hysterics and practitioners of "fringe science."

Many studies over two decades have shown significant (although preliminary) indications of health problems associated with environmental electromagnetic fields. . . .

I am chief engineer for an electronic-warfare equipment manufacturer. Twenty-five years ago, as a new graduate, my first job assignment at the Naval Avionics Facility, Indianapolis, was collecting cases from the literature that evidenced problems from radio-frequency (RF) and microwave. One of the most interesting involved the death at work of a technician in an electromagnetically shielded measurement enclosure. His lifetime exposure had been unusually well documented, and never involved proximity to sources exceeding +15dβm (less than 0.1 the power of a cellular phone). His internal organs showed "cooking" type damage due to long-term RF exposure at very low levels.

David A. Crossley
Albuquerque, N.M.

*Sid Deutsch responds:*

*With regard to the comments of Charles Polk: A frequency of 60 Hz is so low that the induced currents, at the IEEE/ANSI low-frequency levels, are neglibly small. For example: in a* magnetic *field of 200 μT, the total induced voltage around a human torso is 15mV. The resulting current depends upon the path—less current in high-resistivity bone and fat, more in low-resistance blood. The resistivity of the most vulnerable component, axoplasm of the nervous system, yields a current density of 0.5 microampere/cm². This level is below perception by the nervous system; it is a feeble current that cannot penetrate a cell membrane, and it certainly cannot result in DNA mutation. Nevertheless, as I pointed out, for 60-Hz fields, the IEEE advocates further research.*

*In a 60-hz* electric *field, the body can be regarded as one plate of a capacitor. At 600 V/m, the corresponding induced current density is 0.0002 microampere/cm². This is so small that it requires a heroic degree of self-deception to imagine that it could cause a DNA molecule to mutate.*

*Epidemiological studies have been largely inconclusive for two reasons. First, none of the studies show more than a small increase in the cancer rate for people living near power-transmission lines. In each case, the "increase" can be the result of statistical variation. (For example, if you honestly toss a coin into the air 10 times, the chances are that only around 25 percent of the time*

*will it land with five heads and five tails; 38 percent of the time there will be more heads than tails, and 38 percent of the time there will be more tails than heads.) Second, the increase in cancer rate has not been shown to be repeatable. In some surveys there is no increase at all; in some there is a slight increase in the incidence of leukemia in children; in others, a small increase in the breast cancer rate; and so forth. Consequently, this has become a fertile field for the elements in our society that feed on sensationalism.*

*I am grateful to Alan Cromer for supporting these conclusions. In the necessarily limited length of an article in the SKEPTICAL INQUIRER, it was not possible to adequately discuss specific epidemiological research like "the Swedish study."*

*With regard to the comments of David A. Crossley: There is no scientific explanation for how a power level one-tenth that of a cellular phone can* somehow *cook a technician. In the absence of a viable theory, the Crossley Effect should be labeled as "fringe science."*

## Assessing Bible prophecy

I have been a long-standing subscriber to the SKEPTICAL INQUIRER and have used it in my teaching, in clinical consultation, and as a personal reminder to be objective, logical, and of course "skeptical."

In "Fortune-Telling and Bible Prophecy," by Terry Tremaine (*SI*, Winter 1994), I find a good example of clear reasoning that is not correct reasoning. In this article, Tremaine has helped foster a discussion and debate regarding the Second Coming of Jesus. Unfortunately, Tremaine limited his literature review to a relatively narrow group of authors (many of whom were notorious for their atheistic stance) and, by his conclusions, made it clear that he is a dilettante in the area of theology.

Specifically, Tremaine indicates that the words of Jesus that predict he would return ". . . within the lifetime of at least some of his contemporaries" (p. 167) and Tremaine's conclusions that "this clearly did not happen and must count as a precise prophecy that was falsified by the passage of time" (p. 167) are areas that theologians, historians, and much of the Christian Church have addressed for approximately the past 20 centuries. Tremaine does not appear to be aware of this particular body of literature.

In the *New International Version: Ryrie Study Bible (NIV)*, the passage and the accompanying notes for the passage that Tremaine quotes (Mark 13: 14-30) read as follows: "I tell you the truth, this generation will certainly not pass away until all these things have happened" (v. 30). The footnotes for this passage indicate that a generation can be referred to as a normal lifespan, but it might also refer to the generation in which Jesus lived while on earth or to the generation when these signs began to occur (*NIV*, p. 1521). A companion scripture from Luke 21:32, with identical wording, "I tell you the truth, this generation will certainly not pass away until all these things have happened," has notes that indicate "generation" refers to the Jewish race, or it can refer to the future generation alive at the beginning of "these things." The reference note clearly indicates that Jesus did not have a mistaken notion he was going to return immediately (*NIV*, p. 1581).

In the *Dictionary of the Bible*, by J. L. McKenzie, SJ, the *parousia*, the actual Second Coming of Jesus, is discussed at some length. A thorough and balanced theological discussion is contained between pages 638 and 640, and addresses the exact area of concern that Tremaine appears to have had, i.e., that Jesus did not return as was "said."

The article is precisely the kind that would find its way into the SKEPTICAL INQUIRER as something to be viewed with skepticism. You have an excellent publication, and it serves to make all of us mindful of our limitations. Please receive this letter in that same spirit.

James D. Lange
Licensed Psychologist
Mesa, Ariz.

Your Winter 1994 issue seemed to contain an unusually large number of articles I found interesting. Paul Kurtz's "The New Skepticism" and "Philosophy and the Paranormal, Part 1: The Problem of 'Psi,' " by William Grey, were especially outstanding. I am looking forward to the second article by Grey with anticipation.

Terry Tremaine's article, "Global Fortune-Telling and Bible Prophecy," contained some interesting material set in an interesting setting, but unfortunately it was marred by at least one historical factual error. Tremaine, while discussing the Great Disappointment of William Miller and his followers in October 1844, states: "This time, however, in spite of the disappointment, Miller and the inner core of his followers concluded that they were only partially mistaken. Although Christ had not returned to earth, he had returned to an invisible heavenly sanctuary. His coming to earth then became imminent" (Jordan 1988).

The historical fact is that neither Miller himself nor "the inner core" of his followers believed in the idea of "an invisible heavenly sanctuary" to which Christ had returned in 1844. It is true that this idea was developed among a small group of Millerites after the Great Disappointment, and that this idea later became part of the beliefs of the Seventh-Day Adventist denomination. It is not true, however, that "Miller and the inner core of his followers" believed or taught such a doctrine. After the Great Disappointment, Miller and the majority of his followers who met at the Albany Conference admitted their error *as to the time*, and continued to look for the Coming of Christ in the near future. Miller died in 1849, but before his death he dictated his *Apology and Defence* (Boston: 1845), in which he made his views very clear. The view that Christ came on time on October 22, 1844, but to the invisible second apartment of the heavenly sanctuary rather than to the earth, was a view held only by a small fanatical fringe group among Miller's followers, and it was specifically rejected by Miller. He freely admitted that the *date was wrong*, but that the *event* (Christ's Second Coming) was correct, and until Miller's death he continued to expect Christ to come to the earth.

Arlin Baldwin
Coarsegold, Calif.

Someone like myself, a skeptic who is also a practicing Christian, approaches the skeptical community with the same trepidation a bastard child feels at a family reunion. We're not sure what kind of reception to expect. So it was gratifying to read Terry Tremaine's open-minded and unbiased assessment of fundamentalism and biblical prophecy.

I have always felt that skeptics concede too much of the argument to fundamentalists. While focusing on the truth or falsity of a fundamentalist claim, the skeptics seldom challenge the basic fundamentalist premises that (1) acceptance of the doctrine of biblical inerrancy is essential to Christian belief, (2) that the Bible should be read literally and means what fundamentalists say it means, and (3) that the Bible, taken as a whole, presents a clear and consistent theology. In fact, none of these premises holds up under the most casual scrutiny.

Historically speaking, the Christian church has *never*, from its early beginnings to the present day, asserted either that the Bible was inerrant or that it should be interpreted literally. Neither doctrine has ever been taught by the Roman Catholic church, nor the various Eastern Orthodox churches, nor by the traditional Protestant sects. Biblical inerrancy and literalism are products of fundamentalism, which is a phenomenon of the late nineteenth and early twentieth centuries. Their reading and interpretation of the Bible are vastly different from those of mainstream Christians. Fundamentalists preach tradition, but they are not traditional. They are, in fact, "fringe religion," analogous to fringe science. (The more traditional term would be *heresy*.)

So three cheers to Tremaine for noting that the biblical prediction of a

Second Coming within a human lifetime poses little problem for orthodox Christians, who question its authenticity and interpretation, but must be fatal for fundamentalists.

Mark S. Painter, Sr.
Mont Clare, Pa.

Thank GOD (Great Opponents of Deism) that someone has the courage to stand up and tell it like it is about religion!

Ian Wood
Charleston, Va.

*Terry Tremaine replies:*

*James Lange states that I "limited" my "literature review to a relatively narrow group of authors." In fact, I was not conducting a literature review. I was presenting an argument in favor of a point of view. I cited other authors for three reasons: (1) to state that the observation that Second Coming predictions had failed was* not *original on my part; (2) to establish that a body of scholarly opinion accepts that Jesus* may *not have been responsible for at least some of the erroneous predictions made in the Synoptic Gospels; (3) to give a sense of the pseudoscientific nature of "end-time" claims currently being made.*

*I grant that I have not paid much attention to the study footnotes in the* New International Version, *to which Lange refers. My primary sources of the Bible study have been the Greek text of the New Testament (Nestle's 21st edition, published by Regency), the* Greek-English Dictionary of the New Testament, *and the* Revised English Bible *(Oxford University Press). The methodology I have employed involves examining the Greek phrase for "this generation" and how it is used in its various contexts. The conclusion I have reached is that stated in the original article.*

*Lange states that I must be a "dilettante in the area of theology." In fact I have no intention of practicing theology. With my article I was attempting to bring a scientific point of view to a body of writings that*


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Thoughtful.

Curious.

Concerned.

. . . That's a good description of our readers and . . .

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*contain (upon analysis) certain falsified predictions. In my conclusion I stated that since Jesus made false predictions he could therefore have no divine authority. I grant that the notion of divine authority is difficult to pin down scientifically. However, if it means anything, it must be that whoever has it must either make no predictions at all or only those that eventually come true.*

*I thank Arlin Baldwin for his correction of the historical error in my article concerning William Miller. That Miller himself rejected the "upper story" interpretation now seems clear.*

*It is important to realize, however, that as Baldwin states, the idea of an invisible heavenly sanctuary "was developed among a small group of Millerites after the Great Disappointment and that this idea later became part of the beliefs of the Seventh-Day Adventist denomination."*

*My purpose in referring to the Millerites in my article was to illustrate the pseudo-scientific nature of refusing to acknowledge that a prediction has failed and subsequently reinterpreting the prediction so that it is consistent with any set of facts whatsoever.*

## *Role-playing games*

After reading Paul Cardwell, Jr.'s article on role-playing games (*SI*, Winter 1994), I had mixed feelings. On one side, I agreed with him about the media distortion of Dungeons & Dragons, among other games; on the other, his article read like too many other pro-gaming articles in that he is a bit too close to the subject matter to offer an objective view. At the very least, he's a bit too close to gaming to understand why reporters produce so many anti-gaming articles or simply present the unquestioned claims of opponents.

Simply put, while gaming was a big hit over a decade ago, its interested constituency now resides with a few thousand participants in the United States. Gamers offer no easy hook for a "look at the freaks" report as Trekkies do, such as wearing silly costumes, and very few reporters today are willing to spend the time, the energy, or the money for an article that will most likely be cut by an editor for being limited to a tiny portion of the readership.

The reason the "controversy" has declined over the past ten years is because of lack of interest. Rational people laughed at the allegations of gaming material teaching players how to cast spells and worship Satan, game designers weren't as sexy as rock musicians, and as with most branches of science fiction and fantasy fandom, most of the early participants grew up and went on to things rooted in reality. Given a choice between role-playing a dinner date with Natasha Richardson and having a real dinner with my girlfriend, I know which one I'd pick.

Paul T. Riddell
Dallas, Tex.

Although I prefer the more conventional strategy and simulation games, on rare occasions I participate in role-playing games. By curious coincidence the day the Winter *SI* arrived was one of those occasions, and our conversation soon turned to the article on RPGs.

An interesting point was raised among us. The nature of role-playing games is that each of the players takes on the "role" and persona of an imaginary person or character. Exciting, heroic situations in that character's imaginary life are resolved using the complicated rules that each game provides.

As would be expected, such games hold a special appeal for many people who are quite often unsatisfied with their own day-to-day real-life situation. Although most RPG gamers are well-adjusted people with full lives, anyone who has spent much time around RPG conventions, clubs, or specialty shops will soon be left with the impression that a sizable minority of hard-core gamers do not seem to have much of a social life outside of their role-playing-game activities. Some, as evidenced by Bink Pulling and Dallas Egbert III (the tragic suicide victims mentioned in Cardwell's article), are not particularly emotionally well adjusted.

This leads to our point. How many of these people might be even more unhappy, lonely, and depressed if they did not have this social activity, its personal interaction, and the escapism and feeling of positive accomplishment that often come through these games? In short, how many potential suicides may have been prevented by role-playing games?

Peter Huston
Schenectady, N.Y.

Cardwell notes that "the statistics are actually arguing that gaming prevents suicides rather than causing them" and then later concludes, "Of course it does neither." He explains that the statistical result occurs because fewer potential suicide victims engage in RPGs. While there seems to be plenty of evidence that RPGs don't increase suicide rates, I have not seen evidence to discount that RPGs prevent suicides. As a person who plays both board RPGs and live-action RPGs, I find both to be excellent as stress relievers and social outings. I've observed that players naturally form peer/support groups. Additionally, gaming provides a temporary break from the problems of the real world. Any of these factors could be mechanisms to provide alternatives to individuals who are contemplating suicide.

Devin Ross
Dravosburg, Pa.

Although I have never played any of these games, I have long since come to much the same conclusions as Cardwell. At the time role-playing began to come under attack, in the late seventies and early eighties, I was working in various nonspecialty bookstores. I sold a great deal of role-playing paraphernalia, most of it to boys in their early teens. . . . It seemed clear to me that if the stores where I worked were typical, there must be many youngsters involved in this hobby. Meanwhile, the media were highlighting a small number of cases of players who committed suicide or ran away from home, problems that might have been adequately explained by other factors in their lives. Further, the buyers I encountered seemed to have no trouble distinguishing the fantastic worlds of the games from reality, and were, in fact, among the most politie, intelligent, and enjoyable of my customers.

While those of us who spoke to D&D fans on a daily basis never noticed anything disturbing about them, we frequently remarked that another, larger clique of teens of the same age did seem to be engaging in obsessive behavior and to have trouble distinguishing reality from fantasy. These were the boys in combat gear who were fascinated by the "Rambo" image presented in popular movies and such publications as *Soldier of Fortune* magazine. As I read today's headlines, and remember those adolescents toting their toy Uzis while their parents worried about role-playing games and the pernicious effects of science fiction, I can't help but think that the doom-sayers of a decade ago may have focused on the wrong threat to their children's psyches.

Mario E. Donnenwirth
Cedar Rapids, Iowa

## *Chernikov pattern puzzle*

I couldn't resist trying to answer Clifford A. Pickover's test question No. 1 about the Chernikov Pattern Puzzle (*SI*, Winter 1994, p. 171). My 47-word solution, which I believe to be definitive except for size ratios, is as follows:

"Four quarter-sized circles, arranged with four-fold symmetry, each touch two others. Inside each lie six other circles of decreasing size plus an even smaller black dot, all touching the larger circles at points nearest the center of an even larger, heavier circle, partially obscured by others."

Perhaps you could determine if anyone might be able to (*a*) find any other pattern that would fit this description, or (*b*) describe it in even fewer words.

J. Richardson Guadagno
Paonia, Colo.

## Fix responsibility

It has occurred to me that we have a partial remedy for the kind of transparent nonsense about the search for the Ark described in your Winter 1994 issue.

We have an obligation to identify precisely the person responsible for the broadcast. That TV program was not planned by CBS. It was a person. CBS is a corporation, and the shareholders were not polled. The program was approved by some Tom, Dick, or Harriet in the office. We are remiss if we allow him or her to hide behind the corporate shield. Let the name shine clear so that the public may be wary about future products of the same mind.

This is a principle. Let's try to observe it.

Harold Mayfield
Toledo, Ohio

## Shapiro vs. Gardner, round two

I could respond at great length about the content of Martin Gardner's "reply" (Winter 1994) to my letter regarding False Memory Syndrome. However, in this letter I will, with difficulty, restrict myself to a response to his inaccurate references to me, as these are potentially injurious to my professional reputation.

It is telling that Gardner needs to bolster his arguments with an artful but deceptive end run on my credentials. First, he says that my doctorate does not qualify me "to practice psychiatry"; however, it is only he who looks foolish here, since I clearly identified myself not as a psychiatrist, but as a licensed psychologist. Next, and far worse, he employs character assassination by labeling me a "self-proclaimed hypnotherapist," which is tantamount to being called an unethical clinician, practicing a specialty without appropriate training. I cannot allow that statement to go uncorrected: After about 200 hours of postdoctoral training in hypnotherapy, I have been certified as a hypnotherapist by the American Society of Clinical Hypnosis (ASCH), a well-established training organization recognized by the American Psychological Association and the American Psychiatric Association. In addition, I have been certified at the ASCH's highest level, that of consultant qualified to train and supervise other licensed clinicians in hypnotherapy. Had Gardner taken the time as a "scientific inquirer" to ask me, before publishing his derogatory and incorrect characterization, I would have been glad to furnish any relevant documents in relation to my qualifications. Surely a basic of responsible journalism is to check the accuracy of one's assertions—especially potentially defamatory ones—before publishing them.

Marian Kaplun Shapiro
Licensed Psychologist
Lexington, Mass.

*Martin Gardner responds:*

*Freud began his career as a hypnotherapist, but soon abandoned hypnotism as a worthless technique, an opinion shared by most psychiatrists today. Nevertheless, I apologize to Marian Kaplan Shapiro, who has a doctorate in education, for using the adjective "self-proclaimed." She has indeed been thoroughly trained in the use of hypnotism for treating the mentally ill.*

## Science's big ideas

Wayne Rowe and Edmund A. Marek (Letters, Winter 1994), in response to my article on "the textbook problem" (*SI*, Summer 1993), say that it is fantasy to expect that improving the content of K-12 instructional programs in science would either remedy the lack of interest in science (which I did not contend) or raise the deplorable level of critical thinking in our society. They regard this view as simplistic and elitist, and say that it does not distinguish between standards for learning and how much is actually learned.

My contention is that the business of science education should be to explicate the major theories of science

(the "big ideas") to students, and to show their interrelationships in the fabric of scientific knowledge and methods. Curricula should be built around these ideas, using the concepts and strands appropriate for each child's grade level, and using scientific methods and "science processes" to do so. However, this is not what published programs do, and it is likely that the culture does not exist either in the publishing houses or in the teacher-training programs to remedy this. No one can guarantee that students' interest in science would thereby be raised, but increased emphasis on "hands-on" learning cannot guarantee this either. It seems to me that we have a right to demand that our children be provided competent instructional materials. What does it matter how much they learn about or enjoy what passes for "science" in their classrooms if so much of it is as silly and disconnected as the examples I gave?

It is also difficult to understand why it is "elitist" (instead of the reverse) to advocate the increased involvement of scientists in science education. Certainly scientists could use the help of science educators to make their teaching more effective. Why shouldn't this go both ways? And how can publishers and science-education specialists justify printing or teaching anything as "science" if it does not, first and foremost, reflect the best of the current understanding of science, its methods, and its philosophies? I showed that a large part of the national problem of science illiteracy can be traced to publishing houses and the education schools, but the historical apathy of scientists to educational standards and practices is equally responsible. As a society we should do everything possible to shore up this erosion at all points if we want future generations to make intelligent decisions in the voting booth and the marketplace.

Kevin Padian
Department of Integrative Biology
University of California
Berkeley, Calif.

## Fighting talk-show flimflam

While I applauded James Randi's "Secrets of the Psychics" broadcast on NOVA in October (*SI*, Winter 1994), I couldn't help contrasting it with an episode of the Oprah Winfrey show I saw last year. On that program, I watched an astronomer from nearby Colorado State University get cut to ribbons by crude astrologists when he calmly tried to debunk their practice.

Talk shows, time and time again, are the largest carriers of nonsense in this country. These shows offer a patina of respectability for the latest lines of pseudoscientific patter and are where the proponents of pseudoscience should be fought. Randi may reach tens of thousands of viewers on PBS, but full-time obscurantists are pulling the wool over the eyes of millions on shows like Oprah Winfrey's.

I suggest that CSICOP put together a schedule of upcoming appearances on talk shows by cranks or flim flam artists (the newsletter of the American Book Association lists just such matters) and invariably offer a prepared representative to appear on these programs in rebuttal.

Steve Olson
Loveland, Colo.

## The 10-percent solution?

The Winter 1994 issue includes a most interesting letter to the editor by Dwight Decker, speculating on the origin of belief that "we use only 10 percent of our brain." He traces this belief to the fact that scientists at one time understood the functions of only 10 percent of the brain. That is, perhaps people at the time assumed that the 90 percent with unknown functions was actually doing nothing.

That's a plausible explanation, but I have found another possibility that I like better. Consider the following quotation from R. S. Woodworth, *Psychology*, 3rd ed., Henry Holt 1934, p. 194: "The total number of nerve cells in the cerebral

cortex is estimated to be about 14,000,000,000. Many of these are small and apparently undeveloped, as if they constituted a reserve stock not yet utilized in the individual's cerebral activity."

The quotation suggests that all the brain's small neurons (whose function was then unknown) might simply be undeveloped "baby" cells waiting for a chance to grow and then start contributing to cerebral activity.

James W. Kalat
Department of Psychology
North Carolina State Univ.
Raleigh, N.C.

## Well, not quite

An astrological prediction that turns out to be somewhat inaccurate is not really news. Nonetheless, I happened to see one in an old newspaper that deserves repetition. The *Los Angeles Evening Herald and Express* carried an article (p. A9) titled "Hitler's Fall! Astrologer Predicts It Next Summer." It said: "Hitler's downfall will occur this year, according to the Hon. Ralph Shirley, a well-known English horoscope reader. . . . Shirley successfully prophesied the abdication of King Edward VIII. . . . Shirley writes . . . 'Hitler will, I am convinced, be right out of the picture after next summer. Then the outlook will be brighter. Watch the summer around August in connection with Hitler.' "

At this point, the astute reader may not be surprised to learn that this cheery prediction was printed on March 21, 1939, during the dismemberment of Czechoslovakia. "Around August" (actually September 1) was when Hitler invaded Poland, followed immediately by Britain and France entering World War II. Shirley ended his prediction by saying, "I do not believe in any repetition of the Great War."

Neil A. Wells
Department of Geology
Kent State University
Kent, Ohio

## 'American Skeptics'?

Do you folks have a popular shorthand term for CSICOP? If not, how about "American Skeptics"?

Several times, when proselytizing CSICOP, I have found myself tongue-tied. The acronym "ksai-kop" or "sai-kop" has the undesirable associations "psy(chiatric)" and "cop." Even if my listeners do not combine these terms and get "thought police," they still might envision Ollie North characters who collect police pistols and test for LSD in public water supplies. In contrast, the full title "Committee for the Scientific Investigation of Claims of the Paranormal" is a jaw-breaker, guaranteed to put a damper on conversation.

Hugo S. Cunningham
Boston, Mass.

*The Editor replies:*

*Yes, we do have a jawbreaker of a name, but we are well known by the CSICOP acronym. Although we are not really looking for a new official name, other ideas for shorthand ways to refer to us are welcome. The problem with "American Skeptics" as a shorthand term for CSICOP is that we are an* international *organization. We are internationalist in outlook. We have subscribers in 72 countries. We have CSICOP Fellows from at least nine different countries, including Russia, China, and India, and Scientific Consultants from four additional countries, a total of 13 countries represented. On the CSICOP Executive Council, three members are from Canada and one from Britain. So, readers give us your ideas for other possible shorthand terms.*

## World's birthday?

I fully intend to celebrate the six-thousandth birthday of the Earth as suggested by Bernard Howard (Letters, Winter 1994) but on October 23, 1996, rather than November 25, 1997. I got the year 1996 by subtracting 4004 from 6000 and assuming that there was no

year with the number zero. The date of October 23 came from Hatton Yoder's article, "Timetable of Petrology" (*Journal of Geological Education*, 41, pp. 447-489, 1993). He had someone from the Library of Congress make a spot translation from Ussher's 1650 book *Annales Veteris Testimenti, a prima mundi origini deducti* for the exact citation. According to that, the good bishop fixed the beginning as "the entrance of night preceding the 23rd of October, 4004 B.C."

"The entrance of night" doesn't make much sense to me since "darkness was upon the face of the deep" and night had not yet been divided from day. October 23 seems to be as a good a day as any for a bang-up party, but I'm certainly not going to complain if people want to start with the night preceding.

Daniel J. Lynch
Tucson, Ariz.

## Spontaneous human combustion

In my review of Randles and Hough's *Spontaneous Human Combustion* (SHC) in the Spring 1994 issue of *SI*, I should have mentioned that in some studies of supposed SHC cases (American), such as that of Nickell and Fischer (*SI*, 11: 352), the conclusion was that the only thing the 30 cases investigated had in common was that an *external* source of fire was present in each case. In short, these investigators deny that such a phenomenon as SHC has yet been shown to exist.

Gordon Stein
Buffalo, N.Y.

## For the Record

A number of readers of *SI* have commented on the fact that a book review by Robert Baker (Spring 1994) on page 298 uses sentences almost identical to ones that appear on page 289 in my article "Philosophy and the Paranormal, Part 2."

Professor Baker has written to me explaining that his review inadvertently incorporated into his text material that he had intended to quote. As he explains: ". . . When I picked up my notes to type up the manuscript, for some ungodly reasón I erroneously typed merrily away and followed the script religiously, forgetting both the direct quotation and the reference citation."

Baker has apologized to me about this oversight. He regrets this unfortunate lapse in the standards of scholarly propriety, and so do I.

William Grey
University of New England
Armidale, Australia

*The Editor reponds:*

*We too regret this incident. We are grateful to those readers who have pointed it out to us. Clearly the nonattribution of quotations is unacceptable. We apologize to Professor Grey and to our readers.*

*How did the two similar passages get into the same issue of the* SKEPTICAL INQUIRER? *To many, that seemed a miracle in itself, worthy of the subject under discussion. Well, Grey originally submitted his material to us as a four-article series in September 1992 and (after peer review and at our request) as a shorter two-article series in January 1993. In the meantime he used much of this material for an article he wrote for the June 1993* New Zealand Skeptic. *We edited and proofed Grey's two-article series nearly three months before doing the same with Baker's review, and that contributed to our not noticing similarities in language that became apparent to readers seeing the two pieces for the first time a few pages apart.*

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*The letters column is a forum for views on matters raised in previous issues. Letters should be no more than 250 words. Due to the volume of letters, not all can be published. They should be typed double-spaced. Address: Letters to the Editor,* SKEPTICAL INQUIRER, *3025 Palo Alto Dr. NE, Albuquerque, NM 87111.*

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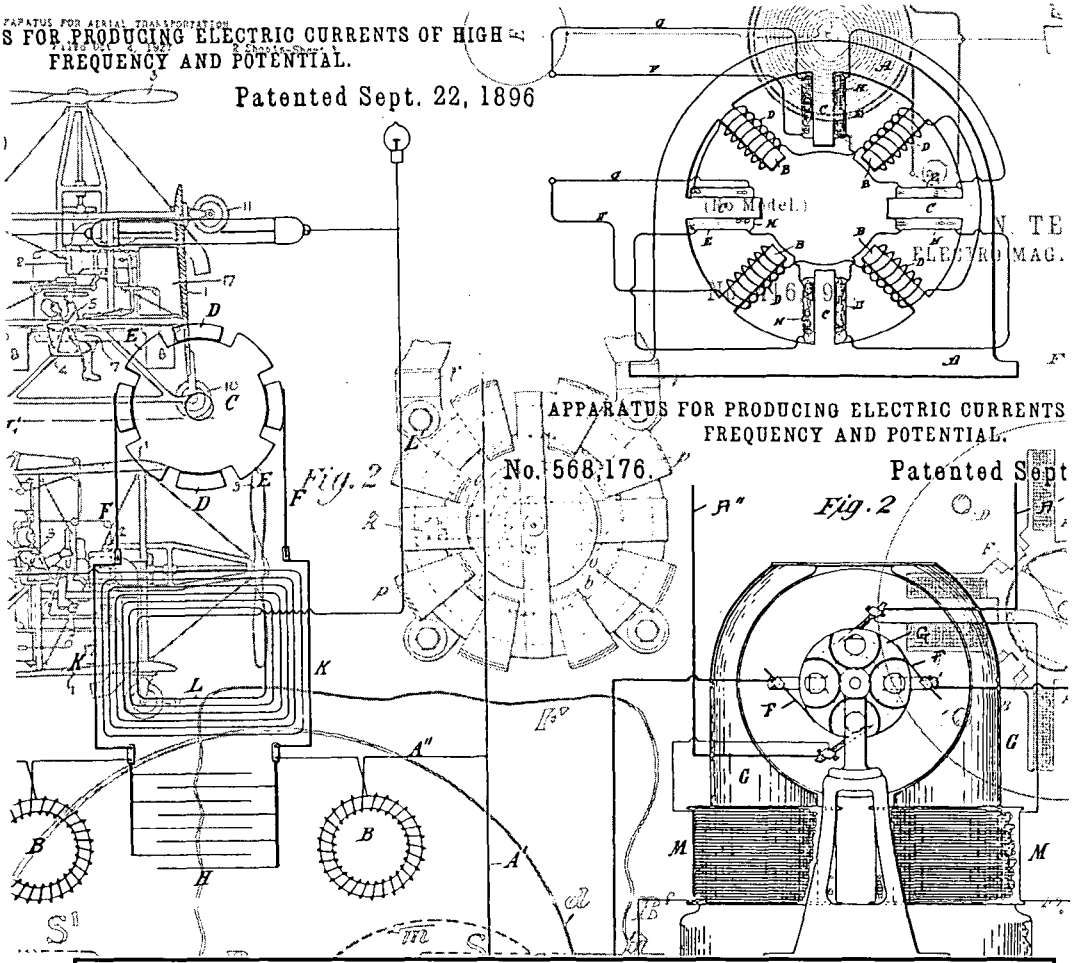


**The Committee for the Scientific Investigation of Claims of the Paranormal**

The Committee for the Scientific Investigation of Claims of the Paranormal encourages the critical investigation of paranormal and fringe-science claims from a responsible, scientific point of view and disseminates factual information about the results of such inquiries to the scientific community and the public. It also promotes science and scientific inquiry, critical thinking, science education, and the use of reason in examining important issues. To carry out these objectives the Committee:

- Maintains a network of people interested in critically examining paranormal, fringe-science, and other claims, and in contributing to consumer education
- Prepares bibliographies of published materials that carefully examine such claims
- Encourages research by objective and impartial inquiry in areas where it is needed
- Convenes conferences and meetings
- Publishes articles that examine claims of the paranormal
- Does not reject claims on a priori grounds, antecedent to inquiry, but examines them objectively and carefully

The Committee is a nonprofit scientific and educational organization. The SKEPTICAL INQUIRER is its official journal.